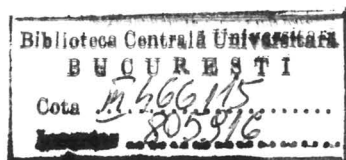


ALEXANDRA CORNILESCU

MONTAGUE GRAMMAR AND THE ANALYSIS OF RELATIVE CLAUSES

EDITURA UNIVERSITĂȚII DIN BUCUREȘTI
1996

Referenți științifici: Conf. Dr. DOMNICA ȘERBAN
Conf. Dr. ILEANA BACIU



© Editura Universității din București
Șos. Panduri, 90-92, București - 76235; Telefon 410.23.84

ISBN - 973-575-126-7

CONTENTS

PART I

A. INTRODUCTION	1
B. THE CATEGORIAL STATUS OF RELATIVE AND INTERROGATIVE PRONOUNS IN MONTAGUE GRAMMAR	31
C. DIFFICULTIES WITH PTQ SYNTAX, A COMPARISON WITH AN 'ASPECTS' SYNTAX	51

PART II

A.1. THE UNDERLYING STRUCTURE OF RESTRICTIVE RELATIVE CLAUSES	83
2. TRANSLATING INTO INTENSIONAL LOGIC	111
B. RESTRICTIVE RELATIVE CLAUSES, THE TRANSFORMATIONS	117
C. FREE RELATIVE CLAUSES	153

PART III

A. NON-RESTRICTIVE RELATIVE CLAUSES	189
---	-----

PART IV

AMOUNT RELATIVES	229
------------------------	-----

BIBLIOGRAPHY	253
--------------------	-----

INTRODUCTION

0.0. Preliminaries. The present work was intended as a syntactic and semantic analysis of relative clauses [RCs] in English and Romanian. At the syntactic level we attempted to provide a set of rules which should generate all and only the well-formed (complex sentences with) RCs ; we were thus interested in writing out a 'theoretical contrastive grammar'¹⁾ of English and Romanian RCs. At the semantic level our aim was to formulate rules of semantic interpretation for complex sentences with RCs, as part of a more general attempt of constructing a recursive definition of truth in a language. When necessary, we resorted to a pragmatic description; at this third level we tried to describe context dependent semantic properties of certain classes of RCs.

0.1. The class of strings to be described was determined on the basis of the transformational analysis of RCs. It is known that in transformational syntax RCs constitute a distinct type of categorial constituents, namely a class of embedded clauses which are members of NPs and where subordination crucially depends on the fact that the matrix and the subordinate clause share a co-referential nominal or noun phrase. RCs are thus characterized by a certain deep structure condition. Under the commonest strategy²⁾ of RC formation the coreferential element in the RC is pronominalized by a relative pronoun or adverb ; (relative adverbs will not be discussed in this work). Hence an approximately correct³⁾ surface definition of RCs may say that RCs are subordinate clauses introduced by relative connectors (pronouns, adverbs).

We have classified RCs according to two criteria :

a) whether or not the antecedent of the RC is present in the surface structure ; from this point of view one can distinguish between : 1) RCs with expressed antecedents (e.g.... [Uneasy lies the head that wears the crown ; ([Here sleeps in peace] a Hampshire grenadier, / Who caught his death by drinking cold small beer (T,T) etc.). 2) RCs without expressed antecedent [e.g. Whoever touches pitch shall be defiled etc.], also called free relative clauses.

b) whether the RC modifies the antecedent common noun or the

antecedent noun phrase. This syntactic difference is obvious in the case of RCs with expressed antecedents and it correlates with an important semantic distinction : that between restrictive and non-restrictive modification [Quirk 1972 : 858]. From this point of view we distinguish : 1) restrictive RCs [= noun modifiers : e.g. [A [fellow] who lived in New Guinea]] , / Was known as a silly young ninny. (T.T. 127) etc. 2) non-restrictive RCs : e.g. ... She called out to [the White King] , who was sitting sulkily among the ashes] (LC : 11). We have shown in Cornilescu (1976) that free RCs have the same underlying structure as RRCs, i.e. they are noun modifiers in the DS (e.g. cine fură azi un ou = acela care fură azi un ou etc.).

0.2. The examples used in the paper have been taken from written English and Romanian material listed in the Appendix or they have been found in the available descriptions of RCs in the two languages. Infrequently, and almost only in the case of Romanian, we have devised our own examples.

1.0. One problem that we faced was the choice of a convenient model for description, that is a model which would be sufficiently elaborated for a syntactic and semantic analysis of complex sentences, and which would allow for a systematic connection of the two levels involved. From this point of view, the use of Montague grammar [= MG] appeared to be a natural choice. Later on, we found that Montague syntax, in the form available in the Proper Treatment of Quantification in Ordinary English [1973 = PTQ], is not fully adequate from the descriptive point of view, so that we finally settled on a model which employs a version of transformational syntax coupled with Montague semantics. From MG, we have retained : a) the structure of the semantic level as well as the general framework of his model theoretic semantics ; b) Montague's view of the relation between syntax and semantics, understood as a homomorphism between algebras.

The rest of the introduction is devoted to a (necessarily) brief presentation of MG, as outlined in PTQ.

1.1. In constructing the grammar of a particular language, at least the following types of criteria should be considered [Chomsky 1971] :

a) descriptive adequacy ; the grammar should be in agreement with

the empirical data (i.e. observationally correct), and in agreement with the native speaker's judgments regarding ambiguity, constituency etc ; this is a criterion of external justification.

b) explanatory adequacy ; this is a criterion of internal justification which would permit the selection of the highest-valued grammar, out of a class of possible grammars which are all descriptively adequate. This implies the existence of an evaluation procedure which can only be the outcome of a linguistic theory [Chomsky (1975)] or of what Schnelle [1976 : 377] calls a matrix for structural linguistics, defined as a specification of the general mathematical matrix with respect to which structural linguistic theories are developed. Particular linguistic theories will constrain the frame by incorporating specific axiomatic or empirical constraints,

Important works that were programmatically concerned with the formulation of an explicit matrix for structural linguistics are Montague's Universal Grammar [1970 = UG], and Chomsky's LSLT, which though similar to UG in many respects, already incorporates axiomatic and empirical constraints peculiar to generative grammar, and is therefore, less general. Montague's UG can thus be read in two different ways :

a) as a theory of language universals, presenting the most general formal properties of the object languages (natural and artificial languages) ;

b) as a theory about the kinds of mathematical notions and entities which should be used in linguistic descriptions. UG is in fact an informally axiomatized theory of the metalanguage, setting up a format for linguistic description.

Remark. UG may be considered an informally axiomatized theory [in the sense of Sneed [1971]] in as much as its basic concepts (e.g. language) are directly defined in set theory, and this makes possible an implicit specification of the admissible models of the theory.

Of the notions defined by Montague in UG we will be using that of 'language'. Schnelle [1976 : 379] makes the comment that what Montague has defined (and called 'language') should rather be called 'level', more specifically, structural level of a linguistic register. Schnelle claims that to account for diachronic, dialectal, socio-lectal etc. variations, a language should be viewed as a number of interrelated registers, each exhibiting several levels of structure.

The matrix for structural linguistics turns out to be a double-indexed family of levels, where one index indicates the level of structure [phonology, syntax etc.] and the other identifies language registers. In the present work, considerations of registers play almost no part, and the investigated structural levels are syntax, semantics and, infrequently, pragmatics.

To facilitate comparison between TG syntax and PTQ syntax, it will be convenient to analyse both of them as realizations of the same abstract notion of language (Montague) or structural level (Schnelle). A level or language is an algebra with restricted operations, a set theoretical entity generated starting from a finite basis.

1.2. PTQ syntax refers to a completely specified fragment of English. The finite basis of the level contains the following components :

(1) The set of categories of English or Cat. Among them there are two designated basic categories : e (the category of entity expression) and t (the category of truth bearing expression). The primitive categories e and t are used to define the remaining categories, so that Cat. is the smallest X such that : a) e and t are in X, b) whenever A and B are in X, A/B and A//B are in X.

Remarks : 1) The formation of A/B or A//B out of A and B is the result of application.⁴⁾

2) Categories A/B and A//B, in general $A/_n B$ play the same role semantically, but they play different syntactic roles. The use of the $A/_n B$ notation may be considered an attempt at syntactic subcategorization, within the same semantic category.

3) Linguistically speaking, the notion of category which is envisaged is that of syntactic category or syntactic type as opposed to paradigmatic category [number, gender etc.]. Two expressions assigned to the same syntactic category will combine with other expressions in exactly the same way. The category indicates the items' distribution.

The following chart [apud Partee [1976 : 56]] lists PTQ categories, to which, following Thomason [1976 : 78] we have added the category of Det(erminer), defined as $T/_CN$. In the fourth column we indicate the names of PTQ categories in Cooper - Syntax.

Category	Abre- viation	PTQ name	Cooper syntax name	Example of basic ex- pression
t	primitive	truth value ex- pression or de- clarative sen- tence	S(declarative sentence)	none
e	primitive	'entity' expres- sion	NF	none
t/e	IV	intransitive VP	VP	'run, walk
t/IV	T	term	NP	John, he ₀
IV/T	TV	transitive verb	V _t (transitive verb)	love, seek
t//e	CN	common noun (phrase)	Nom(nominal, noun)	man
IV/IV	IAV	IV modifying adverb	Adv _{VP} (VP ad- verb)	slowly, fast
t/t	none	sentence modify- ing adverb	Adv _S (sentence modifying ad- verb)	necessarily
IV/t	none	sentence taking VP	V _S (verb which takes that complement)	believe
IV//IV	none	IV taking VP	V _{VP} (verb which takes infi- nitive com- plement)	try
IAV/T	none	IAV making pre- position	Prep(locative preposi- tion)	in, at
T/CN	Det	none	Det(erminer)	the, every

(2) The second element of the finite basis is a set of elementary syntactic objects B ; the elements of B are syntactic words [Stati [1968 : 59], Aronoff [1975 : 8]], that is, non-ambiguous syntactically minimal (undecomposable) expressions.

(3) A category assignment function, or indexing function from the set of expressions B into the set of categories; B is a syntactically marked vocabulary, with categories serving as indices of sets of expressions : e.g. B_A is the set of basic expressions of category A . A basic expression is then a member of $\bigcup_A \in \text{Cat } B_A$. In PTQ the set of basic expressions is given by enumeration and there is no attempt at otherwise constructing a lexicon : e.g. $B_{IV} = \{\text{run, walk, talk, rise, change}\}$.

(4) A set of elementary operations $F^0 = \langle F_q \rangle_{q \in \text{Cat}}$ over vocabulary B , which specifies the permissible modes of combination of basic elements (concatenation, order change etc.). $\sqrt{}$ is a set of operation indices.

(5) A set of operation categories Q^0 , where each operation category $q \in Q^0$ is a sequence, which shows the categories of the expressions that serve as input to an operation, together with the category of the resulting expression : e.g. $\langle \langle T, IV \rangle, t \rangle$, etc.

(6) An (indexing) function S^0 , from F^0 to Q^0 , which associates operations to the operation categories to which they can be properly applied. The elements of S^0 , which are ordered pairs of type $\langle F_n, q \rangle$ constitute the set of (elementary) syntactic rules : e.g. $\langle F_4 \langle \langle IV, T \rangle, t \rangle \rangle t \in S^0$. Thus, a syntactic rule specifies a structural operation, F_n , a sequence of input categories, which are the arguments of the operation F_n , and the category of the output expression. (Thus for an n -place operation, q is an $n+1$ sequence.)

(7) The rules produce a set of expressions A .

The system $\langle A, B_A, \text{Cat}, F^0, Q^0, S^0 \rangle$ defines the finite basis of the level, used to build the syntactic level structure; the level structure has the same components but it is an algebra over basic and complex expressions. The syntactic level structure is constituted of :

(1) the finite basis

(2) the set of phrases P , which is the set of all strings generated by the syntax.

(3) the category assignment function from the set of phrases P to the set of category Cat , so that P_{CN} , P_{IV} etc, represent the set of (basic or derived) common nouns, the set of (basic or derived) intransitive verb phrases etc. For each category,

$$B_A \subseteq P_A.$$

Remarks : 1) There are no expressions of category e in the syntax.

2) Most categories contain basic or derived members, Category t contains only derived expressions ; others (e.g. prepositions (IAV/T_P) contain only basic expressions.

(4) A set of complex operations over members of P , with a set of operation categories ∇ , defining the set of syntactic rules S' , in the manner discussed above.

PTQ contains the following important categories of rules :

a) Rules of functional application of the following form : S_n : If $\alpha \in P_{A/B}$ and $\beta \in P_B$, then $F_n(\alpha, \beta) = \alpha\beta$ and $F_n \in P_A$.

* Note : The name of the rule of functional application relates to the operation of application and to the fact that categories other than the primitive ones, i.e. syntactic categories with fractional indices are interpreted as corresponding syntactic functions [see Lewis 1973 : 215]. PTQ syntax is an applicative functional calculus.⁵⁾

The rules of functional application depend on categorial definitions, being implicit in the latter. For instance, having introduced the category of Det, we might write the following rule to replace PTQ's S_2 .

New S_2 - If $\alpha \in P_{T/CN}$ and $\beta \in P_{CN}$, then $F_0(\alpha, \beta) \in P_T$ and $F_0(\alpha, \beta) = \alpha\beta$.

b) Aside from the rules of functional application which determine a categorial grammar, of special interest in the context of the present discussion are the rules of quantification [S_{14-16} of PTQ]. They allow a term (i.e. a quantifier phrase like every man, or a proper name) to replace a free variable in a sentence (P_t) or a verb phrase (P_{IV}) or a nominal phrase (P_{CN}). These rules closely resemble generative semantics quantifier lowering rules.

S_{14} - If $\alpha \in P_T$ and $\emptyset \in P_t$, then $F_{lo,n}(\alpha, \emptyset) \in P_t$, where either (1) α does not have the form he_k , and $F_{lo,n}(\alpha, \emptyset)$ comes from \emptyset by replacing the first occurrence of he_n or him_n by α , and all other occurrences of he_n , him_n by $\begin{Bmatrix} he \\ she \\ it \end{Bmatrix}$ or $\begin{Bmatrix} him \\ her \\ it \end{Bmatrix}$, according as the gender of the first B_{CN} or term in α is $\begin{Bmatrix} masculine \\ feminine \\ neuter \end{Bmatrix}$, or

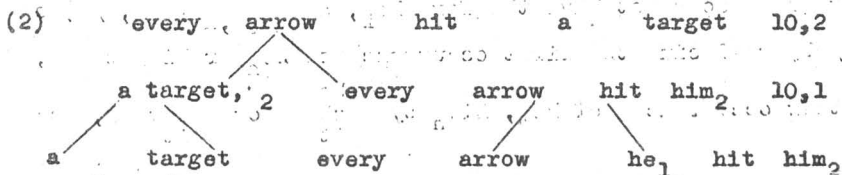
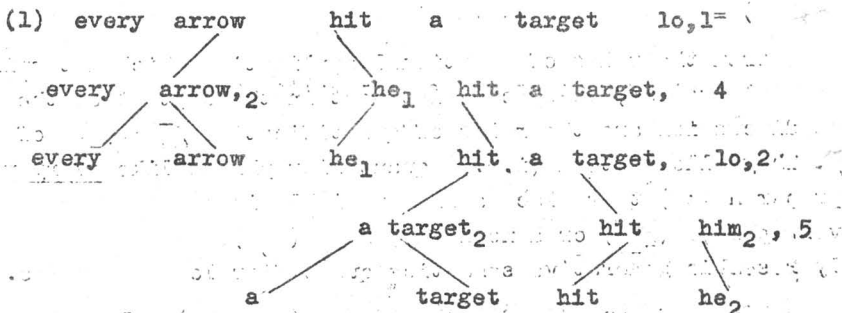
(11) $\alpha = he_k$, and $F_{10,n} (, \emptyset)$ comes from \emptyset by replacing all occurrences of he_n , him_n by he_k or him_k respectively.

S₁₅ - If $\alpha \in P_T$ and $\beta \in P_{CN}$, then $F_{10,n} (\alpha, \beta) \in P_{CN}$

S₁₆ If $\alpha \in P_T$ and $\delta \in P_{IV}$, then $F_{10,n} (\alpha, \delta) \in P_{IV}$

(5) A further element of the syntactic level/language structure is a structural analysis of the members of P. In PTQ, derived expressions are associated with analysis trees. This is necessary because many expressions are syntactically ambiguous, in the sense that they can be built up in several essentially different ways using the syntactic rules.⁶⁾ Analysis trees are graphic representations of the steps by which a string has been constructed; each branching point corresponds to the application of one syntactic rule, each node is labelled by an expression and an associated operation index which indicates the structural operation F_n that was applied to produce the string from the nodes immediately beneath it.

The two readings of every arrow hit a target are easily captured by the disambiguating analysis trees (1) and (2) below. Scope differences appear as differences in the order of application of quantifying rules, the element quantified in last has wider scope:



As described so far, the syntactic level structure of PTQ fits Montague's definition of disambiguated language : $\langle U, G : 225 \rangle$. A disambiguated language is a system $\langle A, F_\gamma, X_\delta, S, \delta_0 \rangle_{\gamma \in \Gamma, \delta \in \Delta}$ which meets the conditions listed below (1) $\langle A, F_\gamma \rangle$, is an algebra, where A is the set of proper expressions of the disambiguated language obtainable from basic expressions by repeated applications of the structural operations F_γ , for all $\gamma \in \Gamma$; (Γ is the set of operation indices), (2) Δ is the set of categories and for $\delta \in \Delta$, X_δ is a subset of A; (3) A is the smallest set including as subsets all the sets X_δ and closed under all the operations F_γ ; (4) X_δ and the range of F_γ are disjoint whenever $\delta \in \Delta$ and $\gamma \in \Gamma$; this shows that X_δ is the set of basic expressions of the language; (5) for all $\gamma, \gamma' \in \Gamma$, all sequences a in the domain of F_γ and all sequences a' in the domain of $F_{\gamma'}$, if $F_\gamma(a) = F_{\gamma'}(a')$, then $\gamma = \gamma'$ and $a = a'$; (6) S is a set of sequences of the form $\langle F_\gamma, \langle \delta_j \rangle_{j \in \beta}, \theta \rangle$, where $\gamma \in \Gamma$, β is the number of places of the operation F_γ , $\delta_j \in \Delta$ for all $j \in \beta$, and $\theta \in \Delta$, S is the set of syntactic rules; $\delta_0 \in \Delta$.

We interpret this definition as follows : A is the set $\bigcup_{A \in \text{Cat}} P_A$ for $A \in \text{Cat}$; F_γ is the set F_γ of structural operations indexed by the operation indices $\gamma \in \Gamma$; Δ is the set Cat of syntactic categories; X_δ is the set of basic expressions B_A for each $A \in \text{Cat}$; S is the set of syntactic rules and δ_0 is the designated category, t (declarative sentences).

PTQ is thus the disambiguate language $\mathcal{U} = \langle P_A, F_\gamma, B_A, S, t \rangle_{\gamma \in \Gamma, A \in \text{Cat}}$

The language generated by PTQ is, nevertheless, ambiguous, because the same English string may correspond to several proper expressions of the disambiguated language structure \mathcal{U} . This is why we define a binary relation with P_A as domain and expressions of English (= language L) as range. R is the relation of syntactic level object assignment [Schnelle 1976 : 385] which matches expressions of English with one or several syntactic analyses. The language L is thus defined by the pair $L = \langle \mathcal{U}, R \rangle$.

We here end the presentation of PTQ syntax.

2. The semantics of PTQ. 2.0. Montague's semantics for natural languages is a refined version of model - theoretic semantics, based on the philosophical ideas of Frege (1892) and Tarski (1936).

as well as on the technical results of Carnap (1947), Church (1957), Kripke (1963), Kaplan (1964).

Montague offers a correspondence theory of meaning. The basic assumption is that a language L , of some syntactic structure is meaningful (i.e. the expressions of L can participate in the process of communication in some human group') if the language L as a system of expressions semantically refers to some complex of objects, which may be called the referent of L . The essential task of semantics is to account for the correlation between linguistic expressions and the non linguistic entities which they denote.

2.1. The same idea guided Tarski, who professed himself to be concerned 'exclusively with the classical concept of truth ('true = corresponding with reality'). Philosophically, the notion of truth which is at stake is that of 'objective truth' a notion which goes back to Aristotle [and which, incidentally is also employed in marxist epistemology (see Flonta (1975)).⁷ It is this idea of objective truth that is the explanandum of Tarski's Convention T, which contends that 'a formally correct definition of the symbol True, formulated in the metalanguage will be called adequate if it entails 'all sentences which are obtained from the expression ' $x \in \text{True}$ if and only if p ' by substituting for the symbol x a structural descriptive name of any sentence of the language in question and for the symbol ' p ' the expression which forms the translation of this sentence into the metalanguage' e.g.

(1) "Socrates is wise" is true if and only if Socrates is wise. This is a metalanguage sentence which states the truth conditions of a sentence in the object language. Such truth-definition sentences should, ideally, be deducible from the set of truth axioms of the truth theory.

Although the above statement of the truth condition of the sentence 'Socrates is wise' is not to be considered a definition of the concept of truth, itself, such metastatements could lead to a definition of the truth concept, if they could be set out for all possible object sentences. This would constitute a definition of truth by extension or by complete listing. However, such a definition - apart from being unrealizable, because a natural language has infinitely many sentences - "would also be open to

the charge of triviality, in that it lacks recursiveness, or interesting calculability". [Wilks 1976 : 211].

For such reasons, Tarski resorts to a more general concept, that of satisfaction of a given sentential function or formula by given objects; the advantage of this strategy is that for any first - order predicate language it is possible a) to give a finite, recursive semantic characterization of satisfaction for all the formulas, on the basis of their recursive syntax ; b) to define truth in terms of satisfaction in a way that leads to the correct characterization of truth - conditions for the sentences of the languages, i.e. those formulas that contain no free variables.

In using the concept of 'satisfaction', Tarski departs from Convention T, which presupposed a notion of 'absolute truth', i.e. truth independent of particular models of interpretation, and adheres to a relativized notion of truth 'truth in a model M'; 'truth in an interpretation'.⁸⁾ In this view, a theory of truth must entail for each sentence x a metastatement of the form ' x is true in M if and only if p ', which states that a model M of L has some property p which corresponds to the truth of x . Like Tarski, and like all model theoretic semanticists Montague does not offer a definition of (absolute) truth in L but only necessary and sufficient conditions for the truth of L - sentences in terms of a class of models of L, which are the referent of L .

2.2. At the same time, Montague semantics should be viewed as a formalization of Frege's important analysis of indirect (opaque) contexts. Kaplan (1964) shows that there are two major approaches in the formal treatment of oblique contexts. One approach, the 'indirect discourse method', attempts to avoid paradoxical inferences, by carefully restricting the application of inference rules, without revising the inventory of the language categories. For instance, Quine (1961) precludes rules like existential generalization in modal contexts (Given the sentence John believes that the tallest spy is a spy one must not infer There is somebody who is believed by John to be a spy). One cannot 'quantify in modal contexts' because according to Quine, terms in opaque contexts do not refer, they are to be assimilated with what he calls accidental occurrences' (e.g. 'nine' in canine'), they are meaningful only as parts of the propositions they occur in.

The second approach is the direct-discourse method (Frege,

Kaplan, Montague, Lewis etc.). Frege (1892) claims that terms used in (oblique) opaque contexts continue to have reference, but they denote other entities than those that they denote in transparent contexts ; namely, in opaque contexts, terms refer to their senses or intensions. It is required that distinct uses of expressions- (e.g. uses of terms in transparent versus opaque contexts) should be marked by some distinction in the expression themselves; for instance distinct uses may be assigned to different semantic types ($\alpha_a, \alpha_{\langle s,a \rangle}$). By introducing a multiplicity of expressions with appropriate denotations we can maintain a standard form for the inference rules. Thus Leibniz's Law applies without restriction, but in indirect contexts two terms have the same denotation (= are identical) only when they have the same indirect context denotation (= the same sense / intension). \square Therefore, it will not be possible to infer from Necessarily, 9 = 9, the statement, Necessarily, 9 is the number of the planets, because the two terms do not have the same intension, although they happen to have the same real world extension ; 9 = the number of the planets ; undesirable paradoxical inferences are thus avoided.

The construction of Montague's intensional logic starts with the enrichment of the set of semantic types, so that for each type we can construct its intension. To achieve this, Montague adds the fixed object s to the set of simple types e, t , so that for any type $a \in T$, there is another type $\langle s,a \rangle \in T$.

2.3. In PTQ, Montague does not directly provide a semantic interpretation for the syntax of English, presented above. Instead, he makes use of an auxiliary formal language, which he calls intensional logic $\square = IL$. It is the syntax of IL which is accompanied by a possible - worlds semantic. The interpretations of IL will be made to serve as interpretations of English by means of a translation of English into IL.

Thus the constructivist procedure of providing a semantics for English involves a) a homomorphic translation relation between English syntax and IL syntax ; b) the homomorphism of IL syntax and IL semantics.

2.4.1. The syntax of IL - provides a recursive definition of the well-formed expressions of IL, called meaningful expressions

$\lfloor = ME \rfloor$. IL is a quasi-applicative algebra with functional abstraction \lfloor vide Gallin' 1975 :10-40, Curry and Feys : 1958 : 83 \rfloor and has the following structure :

(1) a set of types T , which is the smallest set T satisfying
(i) - (iii).

(i) $e, t \in T$.

(ii) $a, b \in T$ implies $\langle a, b \rangle \in T$.

(iii) $a \in T$ implies $\langle s, a \rangle \in T$.

(2) A type assignment function assigns each constant or variable of IL to a type $a \in T$.

Primitive symbols. For each $a \in T$, we have a denumerable list of variable $x_{0,a}, x_{1,a}$ etc. and non - logical constants $C_{0,a}, C_{1,a}$ etc, together with the improper symbols : λ (lambda), \wedge (the cap operator), \vee (the cup operator).

(3) The constants and variables of type a for each $a \in T$ constitute the elementary objects of IL.

Complex IL terms are obtained by a set $(F_\gamma)_{\gamma \in \gamma}$ of operations on elementary objects, as shown in clauses 1)-9).

1) Every variable of type a is in ME_a .

2) Every constant of type a is in ME_a .

3) If $\alpha \in ME_{\langle a, b \rangle}$ and $\beta \in ME_a$, then $\alpha(\beta) \in ME_b$.

4) If $\alpha \in ME_a$ and u is a variable of type b , then $\lambda u. \alpha \in ME_{\langle b, a \rangle}$.

5) If $\alpha, \beta \in ME_a$, then $\alpha = \beta \in ME_t$.

6) If $\alpha \in ME_a$, then $\lfloor \alpha \rfloor \in ME_{\langle s, a \rangle}$.

7) If $\alpha \in ME_{\langle s, a \rangle}$, then $\lfloor \vee \alpha \rfloor \in ME_a$.

8) If $\phi, \psi \in ME_t$ and u is a variable, then $\sim \phi, \lfloor \phi \wedge \psi \rfloor, \lfloor \phi \vee \psi \rfloor, \lfloor \phi \rightarrow \psi \rfloor, \lfloor \phi \leftarrow \psi \rfloor, \forall u \phi, \bigwedge u \phi, \Box \phi,$

$\Box \phi \in ME_t$.

9) Nothing is in any set ME_a except as required by (1)-(8).

A meaningful expression of IL is any member of $\bigcup_{a \in T} ME_a$.

Remark 1. Clause 3) represents the application of an object α to an object β to form a new object $\alpha(\beta)$ "denoting the value of the function denoted by α for the argument denoted by β ".

\lfloor PTQ : 256 \rfloor .

Remark 2. Clause 4) involves functional abstraction, a binary operation denoted by λ (lambda) such that $\lambda u \alpha$ is an object whenever u is a variable of type b and α is an object of type a ; $\lambda u \alpha$ is understood as denoting that function from objects of type b , which takes as value, for any such object x , the object denoted by α , when u is understood as denoting x . [vide Curry and Feys, 1958 : 88, Gallin, 1975 : 19]. The λ operator is also called a binder or abstractor and the expression $\lambda u \alpha$ is an abstract. By combining functional abstraction and application one can form new objects : e.g. $\lambda u \alpha(v)$ is the result of application ; if v is an object of type b and $\lambda u \alpha$ is of type $\langle b, a \rangle$, $\lambda u \alpha(v)$ is an object of type a and the following theorem holds in IL:

(10) $\lambda u \alpha(v) = \alpha(v)$ [This is the Lambda Conversion or Abstraction Application Theorem]

(10) says that the application of $\lambda u \alpha$ to v yields the same object as results from the substitution of v for u in $\alpha(u)$.

Remark 3. The expression $\lambda u \alpha$ is regarded as denoting (or having as its extension) the intension of the expression α . The expression $\lambda u \alpha$ is meaningful only if α is an expression that denotes an intension or sense, in such a case $\lambda u \alpha$ denotes the corresponding extension. (9) is a closure clause.

Remark 4. IL contains constants and variables of type e , differing on this point from the syntax of English.

2.4.2. IL is a disambiguated language, i.e. a system $\langle A, F, X, S, \sigma_0 \rangle_{\gamma \in \Gamma, \delta \in \Delta}$ as defined above, on page

We interpret that definition in the following way :

A is the set of meaningful expression $\bigcup_{a \in T} ME_a$, $a \in T$

F is the set of syntactic operations introduced in 4) - 8) above.

Γ is the set of operation indices.

Δ is the set of types T .

X is a subset of ME_e for each $a \in T$ (= the set of elementary objects (variables and constants) of each type).

S is the set of syntactic rules.

σ_0 is the category index t .

The fact that IL is a disambiguated language will be important in the translation relation defined below.

2.5. IL Semantics. The leading idea in Montague's project is that of the connection between the syntactic structure and the common structure of all the models which constitute the referent of the language. The definition of the model will have to stipulate what kinds of things are to be associated with the syntactic expressions, therefore, it will define a standard ontological frame for the language.

Let A , and I , J be non-empty sets which are regarded as the set of entities A , the set of moments of time J , and the set of possible worlds I . Then the standard frame, or the ontology based on A , I , J is the indexed family of sets D_{aAIJ} , i.e. for each type $a \in T$ we define the set of objects of type a , which are possible denotations of type a corresponding to A, I, J . Like derived types which are constructed by repeated application from the basic types e , t , ontological sets are constructed by means of the corresponding functional operations on the basis of the two fundamental ontological sets:

$$D_{e,A,I,J} = A, \text{ and } D_{t,A,I,J} = \{0,1\}$$

The sets D_{aAIJ} are introduced by the following definition:

- (i) $D_{e,A,I,J} = A$
- (ii) $D_{t,A,I,J} = \{0,1\}$
- (iii) $D_{\langle a,b \rangle, A, I, J} = D_{D_{a,A,I,J}, A, I, J} = \{ F \mid F : D_a \rightarrow D_b \}$
- (iv) $D_{\langle s,a \rangle, A, I, J} = D_{D_{a,A,I,J}, I \times J}$
- (v) $S_{a,A,I,J} = D_{\langle s,a \rangle, A, I, J}$

A standard intensional model or interpretation for IL is a system $\mathcal{U} = \langle D_{aAIJ}, F \rangle_{a \in T}$ where:

- (i) D_{aAIJ} is the standard ontological frame based on A , and I , J .
- (ii) F is a meaning function, having as its domain the set of all constants; whenever $a \in T$ and α is a constant of type a , $F(\alpha) \in S_{aAIJ} \subseteq S_{aAIJ}$ is the set of senses of type a , as defined above.

If \mathcal{U} is a model $\langle D_{aAIJ}, F \rangle$ we denote by $As(\mathcal{U})$ the set of all assignments over IL i.e. all functions g on the set of variables of IL such that $g(x_a) \in D_{aAIJ}$ for every variable x_a .

The syntactic expressions of IL are assigned appropriate denotations $\llbracket _ \rrbracket$ = objects of the appropriate type by means of a function V with respect to an interpretation \mathcal{U} , an assignment g (of values to variables) and a point of reference $\langle i, j \rangle$ (a world, and a moment of time). V is defined recursively, semantic operations 'retracing the steps of syntactic operations'.

$$1') \quad V_{i,j,g} (x_a) = g (x_a)$$

$$2') \quad V_{i,j,g} (\alpha_a) = F (\alpha_a)(i,j) \text{ where } \alpha \text{ is a constant of type } a$$

$$3') \quad \text{If } \alpha \in ME_{\langle a,b \rangle} \text{ and } \beta \in ME_a, \text{ then}$$

$$V_{i,j,g} \llbracket \alpha(\beta) \rrbracket = V_{i,j,g} (\alpha) \llbracket V_{i,j,g} (\beta) \rrbracket$$

$$4') \quad \text{If } u \text{ is a variable of type } b \text{ and } \alpha \in ME_a, \text{ then}$$

$V_{i,j,g} (\lambda u \alpha)$ is that function with domain D_{bAIJ} , whose value at $X \in D_{bAIJ}$ is equal with $V_{i,j,g'} (\alpha)$ where $g' = g (x / X)$

$$5') \quad \text{If } \alpha, \beta \in ME_a, \text{ then } V_{i,j,g} (\alpha = \beta) = 1 \text{ if and only if } V_{i,j,g} (\alpha) = V_{i,j,g} (\beta) \text{ and } 0 \text{ otherwise.}$$

$$6') \quad \text{If } \alpha \in ME_a, \text{ then } V_{i,j,g} \llbracket \sim \alpha \rrbracket \text{ is the function } h \text{ with domain } I \times J \text{ such that whenever } \langle i, j \rangle \in I \times J, h(\langle i, j \rangle) = V_{i,j,g} (\alpha).$$

$$7') \quad \text{If } \alpha \in ME_{\langle s,a \rangle}, \text{ then } V_{i,j,g} \llbracket \sim \alpha \rrbracket = V_{i,j,g} (\alpha) (i$$

$$8') \quad a) \text{ If } \phi \in ME_t, \text{ then } V_{i,j,g} \llbracket \sim \phi \rrbracket = 1 \text{ iff } V_{i,j,g} \llbracket \phi \rrbracket = 0 \text{ and similarly for } \wedge, \vee, \rightarrow, \leftrightarrow.$$

$$b) \text{ If } \phi \in ME_t \text{ and } u \text{ is a variable of type } a, \text{ then } V_{i,j,g} \llbracket \forall u \phi \rrbracket = 1 \text{ if and only if there exists } x \in D_{aAIJ} \text{ such that } V_{i,j,g'} \llbracket \phi \rrbracket \text{ is } 1, \text{ where } g' \text{ is as in } 4') \text{ and similarly for } \exists u \phi.$$

$$c) \text{ If } \phi \in ME_t, \text{ then } V_{i,j,g} \llbracket \Box \phi \rrbracket \text{ is } 1, \text{ iff } V_{g,i,j'} \llbracket \phi \rrbracket \text{ is } 1 \text{ for } i' \in I \text{ and } j' \in J.$$

$$d) \text{ If } \phi \in ME_t, \text{ then } V_{i,j,g} \llbracket \Box H \phi \rrbracket \text{ is } 1 \text{ if and only if } V_{g,i,1,j} \llbracket \phi \rrbracket \text{ is } 1 \text{ for some } j' \text{ such that } j' < j \text{ and } j' \neq j \llbracket H = \text{HAVE} - \text{EN} \rrbracket.$$

Given a model \mathcal{U} , an index i, j and an assignment g , we say that a formula ϕ ($\phi \in ME_t$) is satisfied in \mathcal{U} by i, j, g if $V_{i,j,g}[\phi] = 1$.

A formula is true in D , if \mathcal{U}_{ixjxg} satisfies ϕ for every assignment g .

A set Σ of formulas is satisfied in D by i, j and g $\mathcal{U}_{i,j,g} \text{ sat } \Sigma$ if $D_{i,j,g} \text{ sat } \phi$ for every $\phi \in \Sigma$.

A formula is a semantical consequence in IL of a set Γ (i.e. Γ entails ϕ and we write $\Gamma \models \phi$ in IL) if $\mathcal{U}_{i,j,g} \text{ sat } \phi$ whenever $\mathcal{U}_{i,j,g} \text{ sat } \Gamma$.

A formula ϕ is valid in IL ($\models \phi$ in IL), if ϕ is a semantical consequence of the empty set, or equivalently, if ϕ is true in every model of IL.

Remark 1. We have seen that Montague's semantic system is based on the relation of denotation, i.e. $V(\text{value})$ in the recursive definition above plays the role of denotation or extension.

Precisely, we define $\text{Ext } g[\alpha_{a,i,j}]$ to be $V_{i,j,g}(\alpha_a)$ and $\text{Int } [\alpha_a]$ to be the function h on $I \times J$, whose value at $(i \times j)$ is $V_{i,j,g}(\alpha_a)$. But in fact the intension (sense) of α_a is the same object as the extension of the expression α_a ; for each term α_a of IL we can produce another term ${}^1\alpha_a$ whose extension (with respect to an index) is the intension of α_a with respect to g , i.e. $\text{Ext } [{}^1\alpha_{a,i,j}] = \text{Int } g[\alpha_a]$. In particular, $\text{Ext } g[{}^1\alpha_{a,i,j}]$ of ${}^1\alpha_a$ is independent of $i \times j \in I \times J$, so that $\text{Int } g[\alpha_a]$ is always a constant function.

It appears, again, that unlike philosophers like Quine, who believe that only certain (real) entities can serve as extensions of expressions [remember Quine's criterion of ontological commitment: 'To be is to be the value of a bound variable'], Montague, like Kaplan, assumes that "although not every kind of entity may be the sense of some well-formed formula, any entity may be denoted by some well-formed formula". (Kaplan, 1964 : 17)⁹⁾

Remark 2. Following Carnap (1947), possible worlds semanticists analyse intensional concepts as extension determining functions and define them as functions from possible worlds into corresponding extensions.

Montague generalizes this approach and lets intensions be defined on



indices or points of reference, i.e. on tuples of factors (coordinates), which may be relevant in determining extensions. In PTQ, indices are pairs of worlds and times. More complex indices are given in Montague (1968), as well as in Lewis (1972).

Remark 3. The semantics is compositional; the denotation of a compound well-formed formula depends on the denotations of the parts; (the interpretations obey what Carnap has called *Fröge's* principles of interchangeability).¹⁰

Remark 4. In terms of the correspondence theory outlined above the interpretation of a sentence corresponds to the production in the model of a semantic object that states what it is in set - theoretic terms - for a given (reading of) a sentence to be true. Semantical objects are correlated with each meaningful expression, by rules which are in a one-to-one correspondence with the syntactic rules by means of which the expression is built up. For each sentence, we finally obtain a metastatement of the form: "Every arrow hit a target" is true if and only if... (the semantic object's content); this is precisely the Tarskian goal that Montague set out to reach for a natural language, i.e. a theory that produces as non-trivial consequences the truth definitions of individual sentences of the language.

We thus have an effective procedure of determining the truth conditions of a sentence in terms of a property of the model.

Remark 5. Since IL incorporates the theory of types, its valid formulas are not recursively enumerable, and there exists no complete axiomatization. Gallin [1975 : 30] has however proved a generalized completeness theorem for an axiomatic formulation of IL. He obtains the following important result:

Lemma 3.3.1. Suppose Σ is consistent in IL. Then Σ is g satisfiable in a g model $\mathcal{U} = \langle D_a, A, I, J, F \rangle_{a \in T}$ of L based on A, I, J , where I, J are denumerable and \mathcal{U} as well as each domain is at most denumerable.

2.6. The translation relation. The interpretations of IL may, by way of the translation relation, be made to play a second role as interpretations of English. English sentences are translated with respect to their particular analyses. In fact, the translation relation is defined between two disambiguated languages: on the one hand the language of IL, and on the other hand the syntactic

level structure \mathcal{U} of the English syntax (intuitively the language of the analysis trees) which, as shown on p. 8, is a disambiguated language.

We now define a translation base as a system $\langle f, H_\gamma, j \rangle_{\gamma \in \Gamma}$ which meets the following conditions [see UG : 232].

(1) f is a function which maps the set of categories Cat onto the set of IL types, so that there is only one type in IL corresponding to each category in the syntax : (i) $f(e) = e$; (ii) $f(t) = t$; (iii) $f(A/B) = f(A/B) = \langle \langle s, f(B) \rangle, f(A) \rangle$ whenever $A, B \in \text{Cat}$.

(2) j is a fixed biunique function : 1) its domain is the set of basic expressions (B_A) of English (other than he, necessarily, the, which receive a special translation, given in special individual translation rules, because they contribute to the logical form of the sentence ; 2) whenever $A \in \text{Cat}$, $\alpha \in B_A$ and α is in the domain of j , $j(\alpha) = \text{Con } f(A)$ (i.e. lexical items.)

(3) For every β -place operation F_γ in the syntax there is a corresponding H_γ β -place operation in IL.

(4) Whenever $\langle F_\gamma, \langle \delta_b \rangle_{b \in \beta}, \theta \rangle \in S$ is a syntactic rule of English, $\langle H_\gamma, \langle f(\delta_b) \rangle_{b \in \beta}, f(\theta) \rangle$ is a derived syntactic rule in IL.

For instance for every categorial rule of type (m), there is a translation of type m'.

m. If $\alpha \in P_{A/B}$ and $\beta \in P_B$, then $F_m(\alpha, \beta) = \alpha\beta$ and $F_m \in P_A$.

(m'). If $\alpha \in P_{A/B}$ and $\beta \in P_B$, and α, β translates into α', β' then $F_m(\alpha, \beta)$ translates into $\alpha'(\beta')$.

(5) $g(\delta_0) = \delta_0$. This clause says that sentences of English must correspond to sentences in the logic ($\delta_0 \in \text{ME}_t$).

2.7. English receives an indirect model-theoretical interpretation via IL. As IL admits of many interpretations, and not all of them would be reasonable candidates for interpretations of English, Montague constrains the possible interpretations by introducing meaning postulates : e.g.

(1) $\forall u \square [u = \alpha]$ where α is j, m, b, n . [PTQ : 263].

The truth of (1) guarantees that proper names are rigid designators (i.e. will have invariant extensions with respect to possible worlds and moments of time).

The role of the meaning postulates is to provide a basis for valid inferences which do not follow from the 'logical form' of

the premises alone. As in the case of Carnap, meaning postulates mediate whatever entailment relations between sentences turn upon lexical content.

2.8. Requirements (1) - (5) of the translation base importantly contribute to narrowing down the class of syntactic analyses. Semantic considerations will play a part in the choice of a syntactic description. At the same time, the syntactic analysis should be descriptively adequate, justified on formal grounds internal to the syntactic level. From this point of view the separation of English syntax from IL is an advantage, allowing a certain degree of freedom in the syntactic construction. At the same time the choice of a syntactic theory does not leave us entirely free in the construction of a semantic theory and it sometimes happens that the semantic theory must be adjusted to meet syntactic needs. An excellent illustration of this, last point is Montague's own treatment of terms and quantification, which we sketch below :

2.8.1. Starting from the consideration that the well-motivated syntactic category NP of ordinary English comprises both proper names and quantifier phrases [e.g. a man, every child, the bell]. Montague [1973] adopts a modified logical analysis which allows him to place proper names and quantifier phrases in the same logical category of terms (T). Terms denote second-order properties (a suggestion due to Frege (1892), actually sets of properties of individual concepts, i.e. they are of type $\langle s, \langle \langle s, e \rangle t \rangle, t \rangle$. Thus every arrow designates the set of properties that all arrows have. [in fact that all individual concepts which are arrows have.] ; and similarly for some, the :

every arrow $\Rightarrow \hat{P} \wedge x [\text{arrow}'(x) \rightarrow P\{x\}]$

some arrow $\Rightarrow \hat{P} \vee x [\text{arrow}'(x) \wedge P\{x\}]$

the arrow $\Rightarrow \hat{P} \vee y [\wedge x [\text{arrow}'(x) \leftrightarrow x = y] \wedge P\{y\}]$

To assign proper names to the same type, Montague changes their designation; a proper name like John is no longer analysed as an individual constant j of type e , designating an individual. Instead John designates the set of properties of the individual concept \hat{j} ; its translation is $j^* = \hat{P} \{ \hat{j} \}$. An already mentioned postulate $[\forall u [u = \mathcal{L} \text{ where } \mathcal{L} \text{ is } j, m \text{ etc.}]$ guarantees that the intension-function \hat{j} is constant and the

proper name is a rigid designator. Thus John can be said to designate the property set of the individual John, its complete individual description.

It is easy to understand now $T_{14} - T_{16}$ which translate $S_{14} - S_{16}$ - i.e. the quantification rules given on p.

T_{14} : If $\alpha \in P_{II}$, $\phi \in P_t$, and α, ϕ translate into α', ϕ' respectively, then $F_{10,n}(\alpha, \phi)$ translates into $\alpha'(\hat{x}_n \phi')$.

T_{15} : If $\alpha \in P_{II}$, $\beta \in P_{CN}$ and α, β translate into α', β' respectively, then $F_{10,n}(\alpha, \beta)$ translates into $\hat{y} \alpha'(\hat{x}_n [\beta'(y)])$.

T_{16} : If $\alpha \in P_{II}$, $\delta \in P_{IV}$ and α, δ translate into α', δ' respectively, then $F_{10,n}(\alpha, \delta)$ translates into $\hat{y} \alpha'(\hat{x}_n [\delta'(y)])$.

While syntactically, in $S_{14} - S_{16}$, terms replace free variables in P_t, P_{CN}, P_{IV} , semantically, rules $T_{14} - T_{16}$ express the idea that a certain property is in the set of properties designated by the term, [which is thus actualized]. The following IL operations are implicit in $T_{14} - T_{16}$: a) formation of an abstract out of an IV, CN, t phrase, e.g. $walk'(x) - \hat{x} walk'(x)$, b) application of the quantifier phrase ' to the abstract in conformity with clause (3) of IL p.16.

Every man walks $\Rightarrow P \wedge x [man'(x) \rightarrow P\{x\}] (\hat{x}_0 walk'(x))$

John walks $\Rightarrow PP\{j\} (\hat{x}_0 walk'(x))$

This bipartite translation form, in keeping with natural language categories (NP, VP) is easily reduced to an ordinary predicate calculus form : [in extensional contexts].

Every man walks $\Rightarrow \wedge u [man'_{\#}(u) \rightarrow walk'_{\#}(u)]$

John walks $\Rightarrow walk'_{\#}(j)$.

2.8.2. It is not devoid of interest that Montague's analysis of terms and of proper names gets philosophical support from Rescher(1975), an illuminating attempt of clarifying the ontological status of possible worlds. Rescher advances the idea that the semantics of possible worlds in no way forces one to accept platonic realism. The domain of unrealized possibility has to be seen in the light of a rational construction, proceeding from the domain of the actual and using an already available logic. Nature encompasses only the actual. Possibilia can be said to exist only in a subsidiary or dependent sense, only in so far as they are conceived of, thought of, hypothesized and the like.

They are projected by minds in a process that involves :
1) the descriptive conceptualization of certain thing- specifications i.e. abstracting an intensional object $\langle s, a \rangle$ from a given $\langle a \rangle$; 2) some assumptive process (supposition etc.). The existence of possible entities is confined to the intensional order.

Montague semantics proves that one can systematically and relevantly discuss the relation between words and those entities (possible things, possible situations). In his system possible entities do correspond to non-linguistic entities, but they denote abstract objects constructed by set-theoretic means, out of the basic concrete things (the domain of reference A in IL).

Montague's justification for his particular formal treatment lies: 1) in the adequacy of his account of the entailment relations of such sentences as : John is looking for a unicorn, He owes you a donkey etc. [i.e. sentences that refer to possible individuals] ; 2) the overall generality with which denotation is assigned to language as a whole.

Like Kripke (1972), Rescher believes that possible worlds can only be defined as collections of "compossible possible individuals" the construction of possible worlds "proceeds by way of moving first to possible individuals ; in its turn the description and identification of possible individuals presupposes an analysis of actual individuals - of special interest for the present section.

This analysis is a survey of actual individuals which embraces two items : 1) a population - census or item - inventory of the actual individuals, comprising their systematic identification ; 2) a feature-inventory for these individuals, indicating those properties (features, characteristics) that pertain to the real individuals, resulting is a systematic taxonomy" [op.cit. 7].

The identification of an actual individual involves : its (merely) qualitative complete descriptive specification (c.d.s.), as given by its property set P , plus its ostensive locative indication i P, i .

The similarity between this view and Montague's need not be emphasized. What $\langle PP \{j\} \rangle$ says is precisely that the individual John(j) is identified by his property set P , i.e. by his (c.d.s.) [we have already explained why we are entitled to speak of j rather than $\sim j$]. Each logical constant j , m , be etc. is associated with its property set.

Note. Further on Rescher shows that providing property sets of actual individuals is a necessary step in the ontological definition of possible individuals. "Non actual individuals are individuated as follows: (1) by their actual-world prototype, they have one (2) if they do not have an actual world prototype, then simply on the basis of their characterizing c.d.s. (complete descriptive specification). [op.cit. : 63]

3. Final remarks on Montague semantics. 3.1. From a semantic point of view, the most important property of the object language that the system formalizes is that of logical consequence or entailment, alongside with other important semantic notions like logical equivalence, valid formulas etc. Given a distinction between logical and non-logical aspects of semantic representation, IL specifies only entailments which hold in view of the logical (= syntactic) form of the sentence (plus those made possible by the very few meaning postulates introduced by Montague). It is unanimously agreed that logical entailments are relevant to the meaning of a sentence. [which has often been defined 'as the sum of the sentence's consequences'] and, in a more general way, to the process of language understanding [work in artificial language justifies this claim (see for instance, Charniak (1976))].

The inferential capacity of the grammar may be increased by various extensions of the system. For instance one could make systematic use of meaning postulates to describe inferences warranted by the descriptive content of items etc. Also the semantics can be supplemented with a theory of formal pragmatics. This would make possible the analysis of indexicals [Montague, 1968], speech acts [Wunderlich, 1976], and in particular it would show how the inference set of a sentence depends on context.

3.2. A particularly valuable feature of Montague semantics is its compositionality. This follows from the relation of conformity between IL types and ontological types coupled with the fact that the notions of meaningful expression of IL and denotation of a meaningful expression of IL are defined recursively.

3.3. By means of the translation relation, PTQ grammar offers a model-theoretic interpretation of English syntax.

This is the consequence of the precision with which the translation from English into IL is defined.

Naturally, one may have defined the interpretation on English syntax directly, as done by Montague in English as a Formal Language. It will be shown below that the method of indirectly specifying an interpretation is not devoid of advantages. As things stand the

syntax of IL may be viewed as a (universal) level of semantic representation of sentences and then PTQ may be said to provide a systematic account of how sentences are associated with their semantic representation.

4. Montague grammar makes no claim to psychological reality, it does not purport to say anything about cognitive processes. It is not a theory of language understanding [a theory which explains what goes on in people's heads], but a theory of success [the correspondence theory as a means of explaining successful interaction]. Putnam (1978) (who formulated this distinction) asserts that both kinds of theories are needed to explain the whole phenomenon of what is called meaning in natural languages and that either by itself is only part of the story. Correspondence accounts of meaning should be viewed as complementary to theories of understanding.

Commenting on MG as a correspondence theory, Dowty (1978) mentions several reasons why Montague's approach to semantics is important to linguistics in spite of its non-psychological nature.

First, the correspondence side of meaning is of interest and importance in its own right, because it is an integral part of the phenomenon of natural language.

"Second, to be able to really evaluate a theory of natural language understanding for adequacy, we would have to be able to show that it matched up with an adequate correspondence account in the appropriate way, that is, it would have to show [...] just how it is that humans are able to recognize and exploit such a correspondence with the environment. [...]. To use a current phrase, a theory of correspondence must be the "bottom line" in any overall explanation of meaning.¹²⁾ [Dowty, 1978 : 103]

5. Word-meaning-a problem. Roughly, MG presents the following picture of what understanding a sentence would mean: to understand a sentence is to understand the meaning of its logically simply constituent expressions together with its syntax. To understand the syntax of a sentence is to know how the individual senses combine to give the sense of the whole. We can reasonably agree that MG is successful in performing this task. Suppose that we also accept the principle that to understand the sense of a logically simple expression is to know how in principle to recognize whether an object is or is not member of its extension.

Model theoretic accounts, including MG, cannot, in principle solve the problem of determining word - extension. At least for

simple expressions the relation of denotation which assigns extensions to expressions, is not supposed to need further explaining. Moreover, from a more technical perspective, Jardine (1975) shows that even if a complete assignment of truth values is given "the respective constraints on valuation can only specify a class of isomorphic models and "in any isomorphism class there are models which differ on all (non-empty extension " (op.cit : 231)). Extensions are not determined by the internal structure of the language.

Recent work on proper names [Kripke, 1972], natural kinds [Putnam, 1970 e.a.] social rank terms [Dahlgren, 1978] etc. imposed the conclusion that the determination of word-extension is a problem that can be solved only in a theory of language use, which is equipped to deal with knowledge of the real world and sociolinguistic factors. In such theories, the relation of denotation is not taken as an unexplained primitive, but is itself an important explanandum. In an influential paper Putnam argues that the extension is not fixed by a concept that the individual speaker has in his head, that this is true because "extension is, in general, determined socially - there is division of linguistic labour - and because extension is, in part, determined indexically " [1975 : 247] (i.e. depends on the actual nature of things in this world and this actual nature is not in general fully known to the speaker). Hence the semantic study of words will have to be divided into : a) the determination of extension, this often involves a "socio-linguistic division of labour, in which only experts can really fix the extension of certain terms ; b) the description of individual semantic competence, i.e. of the particular ideas and skills" required for an individual to use a word correctly, which for some terms would consist of a stereotype of the nominal member of the extension. Word meaning is a tuple consisting of at least : syntactic markers, (very few, general) semantic markers, stereotype, ... , the extension . The stereotype is a conventional (frequently malicious) idea (which may be wildly inaccurate of what an X looks like " . [Putnam, 1975 : 249], i.e. it contains sets of criteria or features currently used for ascertaining if a thing belongs to a kind. [As described, individual semantic competence is not so strong as to actually determine extension]. It is likely that the semantic markers and the stereotypical features could be built into MG as classes of entailments based on word - content. But it is obvious, that the study of (monomorphemic) word - meaning remains outside MG, even if the results of this study can be properly integrated in the grammar.

Dowty [1978 : 104] remarks that it is not easy to decide just

how much information goes into/^astereotype and that the amount of information is speaker dependent. The kind of information contained in the stereotype also varies; it depends on the nature of the referent [Dahlgren, 1978 : 69] shows that the stereotype involves perceptual features for colour terms, artifacts, natural kinds etc. typical behaviour features for animals etc. functional features for artifacts etc. Therefore no single set of formal contract is adequate to represent or study individual competence in all types of terms. If this is true, it would appear that the notion of intension is still useful in semantic theory; intensions may be interpreted as general identification procedures¹³⁾ with which a subject is equipped, procedures which help him determine extensions given information about some situation [= the reference point]. The approximation comes closer to reality if the intension function is defined on a more structured reference point (including not only a possible worlds coordinate, but also a context coordinate, a speaker coordinate etc. [see Lewis(1972)]).

There is one point on which all the researchers quoted above agree and which has far-reaching consequences for current linguistic research. This is the fact that properties listed in the stereotype and in the semantic marker are not analytically predicated of each member (or even of any member) of the extension. Such features are not true by definition. (1) Tigers are striped is not analytically true. This epistemic argument counts as a most serious objection to any theory of semantic representation in which items are represented as structured or unstructured sets of features [e.g. Katz-Fodor (1963), McCawley(1972) et al.]. In any such theory sentence (1) is of the form 'a is a' at some level of analysis; hence it is analytically true. It follows, that, the representation of items as unanalysed constants is an advantage, which increases the plausibility of IL as an adequate level of semantic representation.

Reasoning from psychological premises, Fodor, Fodor, Garrett(1975) come to the same conclusion. Their arguments center on sentence comprehension processes. Sentence comprehension must include a stage when syntactic form is turned into semantic representation. Sentence comprehension is very fast, and this is harder to explain if semantic representation is very complex, for instance, if lexical items are analysed as complex sets of features. On the basis of this and of other experimental evidence they propose that "to each morpheme of the surface structure of a natural language then corresponds a primitive expression in semantic representation. [op.cit. 525]

"In particular given a choice between assigning a process [in the case word-based inferences] to the comprehension system and

assigning it to the inferential system, all other things being equal we should choose the latter option. That is precisely what hypothesizing meaning postulates in place of eliminative $\underline{=}$ componential/definition permits us to do.

6. Taking into account that the present work is concerned with the semantic role of one type of embedded clauses - relative clauses - and that relative pronouns will be analysed as words which contribute to logical form, we consider that the choice of MG for semantic analysis was not only a better choice, but perhaps, the only choice.

Notes

1. For a discussion of the aims and scope of 'theoretical contrastive linguistics see Theban (1970), Di Pietro (1971), Kalogjera (1975), Chițoran (1979). We quote the following programmatic statement by Theban, who defines the relation between theoretical contrastive linguistics - as a branch of typology - and other components of contrastive analysis (error analysis etc.). "Typology, the most important branch of general and theoretical linguistics subordinates, orientates and systematizes all the aspects of contrastive linguistics. In the case of a contrastive project with mainly, pedagogical implications the task of the linguistics cannot surpass their competence. They will elaborate a contrastive model of the two languages conceived as a hierarchy $\underline{[}$ typological and differential $\underline{]}$ of the contrasting structures in the decreasing order of the distance between them, and the psychologists and educators will elaborate a contrastive inferential analysis based on a hierarchy of the recorded mistakes in the foreign language classes.

The comparison of the two languages in an attempt to discover regularities, correspondences, symmetries, conditionings or discrepancies between the hierarchy of contrasting structures and the hierarchy of errors, represents a synthesis of the contribution with which linguists, psychologists and foreign - language teachers, from different but equally relevant points of view, have to contribute to the achievements of the aims pursued by contrastive analysis $\underline{[}$ Theban 1971 : 84-85 $\underline{]}$.

2. In a survey of some 40 languages, Keenan and Comrie. (1977), starting from a semantic definition of RCs, identify several distinct syntactic means of RC formation, which they call strategies of Relative Clause Formation. One and the same language may exhibit different RCF strategies. English and Romanian use a 'pronominal case-coding' strategy, based on relative pronouns and relative adverbs

3. In English RCs may also be introduced by conjunctions such as that, but, as, which introduce other types of subordinate clauses as well.

4. "Application is a binary operation indicated by juxtaposition, such that if x and y are objects xy is an object". (Curry - Feys, 1958: 88).

5. "A system with application as sole operation will be said to be an applicative system. If it has application in combination with other operations it will be said to be quasi applicative". (Curry - Feys, 1958: 31).

6. The language exhibits a great deal of "harmless syntactic ambiguity = i.e. cases where different constructions of the same expression are logically equivalent. For example consider the sentence : (1) A woman loves every man. There are actually infinitely many derivations for this sentence, simply because each of the term phrases a woman, every man could have been introduced either directly or via substitution for any one of an infinite number of free variables ; but it turns out that all these derivations lead to one or the other of just two logically distinct semantic interpretations, differing only in the relative scope of the two quantifiers.

7. Flonta (1975, 1978) shows that, espousing a realist conception of truth, marxist epistemology insists on the distinction between objective truth, understood as correspondence with reality, and, the criterion of truth. [It is known that subjective theories of truth introduce the criterion of truth in the definition of truth itself]. The importance of this distinction was fully understood by Tarski. He offers a coherent formal way of speaking about the correspondence between theories and reality, but his semantic definition does not provide a criterion for establishing whether a-given statement (of a theory)-is true or false.

On the relation between formal truth and gnoseological truth, see Pirvu, 1974, chapter VIII.

8. Tarski (1976) uses an unexplained concept of satisfaction (in fact 'satisfaction of a sentential function by a sequence of classes) to construct an appropriate semantic metalanguage. As shown by Jardine (1975 : 222), "in later papers, (see e.g. Tarski and Vaught (1957) - "Attributive extensions of relational systems in *Compositio Mathematica* 13. 81-102) model theory is used to

clarity the notion of satisfaction, and the theory of truth is explicitly presented as an explication of truth in terms of extension in a model".

9. An interesting up-to-date discussion of Leibniz's law and quantifier laws in Quantified Modal Logic is to be found in Hintikka (1975, ch. VVI).

10. The Frege principles of interchangeability are formulated as follows in Kaplan [1964 : 6]: "the denotation of a compound wff is to be a function of the denotation of the parts and the sense of a compound wff is to be a function of the sense of the parts." Kaplan defines a semantic system as a pair $\langle L, R \rangle$, where L is a language and R a semantic relation (reference, meaning etc.). IL can be described as the semantic system $\langle \text{IL syntax, Denotation} \rangle$. Kaplan [1964 : 17] makes the further specification that we will call a semantic system extensional if the system is Fregean and the semantic relation is that of denotation.

11. Proceeding from the premise that IL is a universal level of semantic representation Partee (1977) discusses its chances for psychological reality, concluding perhaps prematurely, that IL stands a good chance of being psychologically real.

She agrees that any human grammar must meet the requirements of finite representability and finite learnability. However, "because the three starting sets A, I, J are not finite, the cardinality of the sets of possible denotations $D_{a, A, I, J}$ will increase without bound" [op.cit. : 316]. Hence Partee suggests the following psychologically tenable position: "We have finite internal representations of the form of sets of denumerably many infinite cardinalities, but the linguistically possible denotations of any given type are at most denumerable subset of the 'formally possible' denotations of that type and each of the linguistically possible denotations is finitely describable ... The IL will contain at most denumerably many expressions of a given type, and the finite perceptual and cognitive apparatus will make at most many denumerable members of $D_{a, A, I, J}$ finitely representable and it will be only correspondences between these two at most denumerable sets that have to be empirically determined by the learner".

12. Dowty [1978 : 103] assumes that theories of understanding must also offer compositional accounts of meaning and tentatively advances the following: "Thesis of parallel structure of reference and understanding".

If certain ways of deriving the meaning of English compositionally from the meaning of their parts can be shown necessary in a correspondence theory of meaning, then it may be concluded that the same compositional analysis is necessary in a theory of language understanding (sentence production and processing).

13. The idea is put forth by Tichy [1971 : 274 a.o.].
- "I do believe that an ontological split of the world into things and identification procedures is an inevitable prerequisite to any satisfactory philosophy of language... My suggestion is more particularly to look at the basic epistemic situation as a confrontation between a set of objects and a subject equipped with a battery of identification procedures [= intensions]. One of the circumstances that makes procedures especially recommendable as explicata for intensions is the fact that they lend themselves in turn to a very convenient explication in terms of possible worlds. To know the procedure is to have some way not only to demarcate the class of actual designations but to identify an appropriate class as the class of designations under each of the conceivable states of affairs. Clearly the procedures determine a function mapping possible worlds into subclasses of the universe"
- Furthermore, in the light of Putnam's work for natural kinds etc, Dowty (1978) remarks that "there is an important sense in which the intension of a word should be viewed as narrower than what can be specified by the knowledge of even the whole community."

6. On the categorial status of relative and interrogative pronouns in Montague grammar.

O. In the present section we extend PTQ, so as to accomodate restrictive relative clauses introduced by relative pronouns [who, which = wh - words]. PTQ discusses only such that relative clauses [= RCs], which are unnatural and infrequent in ordinary English : e.g. Every man loves a woman [such that she loves him] [PTQ : 254].

We suggest that relative pronouns should be viewed as syntactic determiners that have the semantic role of logical binders [λ -operators]. This interpretation can be extended to interrogative pronouns and to the wh-words (relative pronouns) used in cleft sentences. The morphological overlap of relative and interrogative pronouns receives semantic justification. Relative and interrogative pronouns are distributional variants of the same category of pronouns.

0.1. Previous Montague analyses of (Restrictive) Relative Clauses
 $\overline{\text{RCs}}$ Montague (1973) and Rodman (1976) treat RCs as members of CN phrases (e.g. book such that Mary doesn't like it), which are not themselves assigned to any category. Here's Montague's RC formation rule S_3 with the corresponding translation rule T_3 .

(1) S_3 : If $\mathcal{L} \in P_{CN}$ and $\emptyset \in P_t$, then $F_{3,n}(\mathcal{L}, \emptyset) \in P_{CN}$, where $F_{3,n}(\mathcal{L}, \emptyset) = \alpha$ such that \emptyset' and \emptyset'' comes from \emptyset by replacing each occurrence of $\begin{Bmatrix} he_n \\ him_n \end{Bmatrix}$ by $\begin{Bmatrix} he \\ she \\ it \end{Bmatrix}$ or $\begin{Bmatrix} him \\ her \\ it \end{Bmatrix}$ respectively, according as the first B_{CN} in \mathcal{L} is of $\begin{Bmatrix} feminine \\ masculine \\ neuter \end{Bmatrix}$ gender.

e.g. If $\underline{\text{man}} \in P_{CN}$ and $(\text{he}_2 \text{ has won the prize}) \in P_t$, then $F_{3,2}(\underline{\text{man}}, \text{he}_2 \text{ has won the prize}) = \text{man such that he has won the prize.}$

man such that he has won the prize
/ \
man he, has won the prize.

(2) T_3 If $\mathcal{L} \in P_{CN}$ and \mathcal{L} translates into \mathcal{L}' and $\emptyset \in P_t$, and \emptyset translates into \emptyset , then $F_{3,n}(\mathcal{L}, \emptyset)$ translates into $\tilde{x}_n[\mathcal{L}'(x_n) \wedge \emptyset']$. T_3 shows that a string made up of a common noun + relative clause designates a compound property of individual concepts. Semantically, Montague's analysis is satisfying. It implies that the

correct parsing of a string like (3) is (4) not (5).

- (3) The student who knows Montague is young.
- (4) [[The [student who knows Montague]] is young].
- (5) [[[The student] [who knows Montague]] is young].

Parsing (4) endorses the correct semantic entailments: given the Russellian analysis of definite descriptions, (4) entails that there is one and only one student who knows Montague and that student is young, while (3) wrongly entails that there is one and only one student and that student knows Montague and is young. This semantic argument allows us to choose between rival syntactic analyses [see next chapter]. Essentially the same analysis of relative clauses was first suggested by Dean (1967) in English linguistics.

Following Montague (1973) and Rodman (1976) strings of the type man such that you met him, boy such that/who speaks Japanese are assigned to category CN.

We believe that S_3 cannot adequately handle relative clauses introduced by wh-words and by that. S_3 introduces such that syncategorematically. It is undesirable to treat who, which, that, what in the same way. First, they all differ from such that in that they cause the deletion of the nominal coreferential with the antecedent in the RC. [Compare : book such that she liked it // book that/which she liked]. Second, that, who, which differ among themselves : that is best analysed as a conjunction [it is invariable, it cannot be preceded by prepositions etc.], while - wh - words have important nominal properties : a) They are characterized by the nominal paradigmatic categories of gender [the opposition who/which etc.], case [the opposition who /whose/whom etc.], number [the picture which is hanging on the wall, the pictures which are hanging on the wall]; b) Considering the syntactic behaviour of wh-words in restrictive RCs, free RCs and interrogative clauses, it is easy to see that they have the surface distribution of determiners or pronouns (i.e. underlying determiners that allow the deletion of the nominal they determine, if we accept the current transformational position [Stowell, 1973 : 160-230]).

What books he still has are on the table ?

Which picture did you choose ?

The picture which he choose is not valuable.

c) As pronouns, they assume syntactic functions : subject, objects etc.; they behave like other NP_s ; d) All of the wh-words can be preceded by prepositions.

We conclude that wh-words should be assigned to some syntactic category which would make their morpho-syntactic properties predictable, and which would show the similarity between wh-words and other categories of pronouns/determiners, such as the indefinites. An analysis of wh-words along the lines of S₃ or of Rodman (1976) is empirically inadequate, and in addition it implies a loss of significant generalizations which makes it suffer from explanatory inadequacy.

1.1. The categorial status of the relative clause. The first step in the analysis is that of assigning a syntactic category to the relative clause as a derived phrase. A consideration of the meaning of strings like who knows, which is on the table etc. shows that such strings cannot be assigned to category t, because they do not have propositions as intensions and truth-values as extensions. Intuitively, the extension at an index of who knows English is the set of English knowing individuals concepts [the extension of a property - a property set], while the intension is a property of individual concepts ; that is, the function from the set of indices into the set of English knowing individual concepts at each index. Their denotation and their distribution within common noun phrases suggest that RCs should be placed in the category of Adjectives [Cresswell, 1973 : 43 ; Lewis, 1972 : 4] or into the larger class of adcommon noun phrases [ACN phrases - Thomason, 1976 : 77, Bartach 1975 : 181] defined as CN/CN [phrases that combine with common nouns to form common nouns]. In fact several sub-classes of ACN phrases should be set up on syntactic criteria [We use the bar notation CN/_n CN to label them].

(6)	CN,	CN/ ₁ CN	CN
	house	which is small	house which is small
	CN	CN/ ₂ CN	CN
	man	tall	tall man
	CN	CN/ ₃ CN	CN

key	to the door	key to the door
CN	CN/ ₄ CN	CN
woman	knowing English	woman knowing English

A new rule can be added to PTQ, with its translation :

(7) S_{18} - If $\alpha \in P_{CN/\substack{CN \\ n}CN}$ and $\beta \in P_{CN}$, then $F_4(\alpha, \beta) \in P_{CN}$, where $F_4(\alpha, \beta) = \beta \alpha$.

T_{18} - If $\alpha \in P_{CN/\substack{CN \\ n}CN}$ and $\beta \in P_{CN}$, and if α, β translate into α', β' respectively, then $F_n(\alpha, \beta)$ translates into $\alpha'(\beta')$

The semantic type of ACN constituents is $\langle s \langle f CN \rangle, \langle f CN \rangle \rangle = \langle s \langle s, e \rangle t \rangle, \langle s, e \rangle, t \rangle$. In accordance with their type assignment P_{ACN} designate functions from common noun intensions to common noun extensions. We abbreviate $CN/\substack{CN \\ 1}CN$ in (7) by \overline{ACN} = proposition - based adcommon phrases [we adopt the notation of Delacruz, 1976]. T_{18} is general enough to encompass the meaning of all the modifiers in (6). In particular T_{18} adequately describes what Bolinger (1967) called "reference modification", or intensional modification, illustrated by chemical engineer, alleged thief, good violonist, former president of the US. Notice also that in this framework the adjective is analysed as basically attributive [$P_{CN/\substack{CN \\ 2}CN}$], Bartsch [1975] and Kamp [1975] suggest that ACN phrases should be subcategorized according to their inferential properties. For certain classes of ACN phrases rule T_{18} should be supplemented by meaning postulates which narrow down the general interpretation suggested by T_{18} . From this point of view, certain adjectives (red, four - legged, dead) and all of the relative clauses belong in the class of predicative [Kamp, 1973 : 125], or extensional modifiers. According to Kamp [op.cit. 125] such adcommon phrases possess a certain invariance property that makes them behave as predicates which, when combined with a noun phrase give a complex equivalent in meaning to the conjunction of the predicate represented by the modifier and that represented by the common noun. The meaning of predicative modifiers is adequately characterized by the following MP :

(8) MP (10) $\Box \wedge x [\alpha'(\beta')(x) \longleftrightarrow \beta'(x) \wedge \alpha'(x)]$
e.g. $\Box \wedge x [\text{'yellow'}(\text{'blouse'})(x) \longleftrightarrow \text{'yellow'}(x) \wedge \text{'blouse'}(x)]$
 $\Box \wedge x [\text{'who-ran-away'}(\text{'prisoner'})(x) \longleftrightarrow \text{'prisoner'}(x) \wedge \text{'who-ran-away'}(x)$
 $\longrightarrow \text{'prisoner'}(x) \wedge \text{'ran-away'}(x)]$

The similarity of extensional adjectives and relative clauses is thus captured in the semantic component not in the derivation of attributive adjectives from relative clauses. Following Montague we let the right side of MP (10) represent the translation of relative clauses. In conclusion we let relative clauses belong in the category of proposition - based adcommon noun phrases.

1.2. The categorial status of the relative pronouns. Relative clauses express properties of individual concepts. In the light of this statement, intuitively, the role of the relative marker (that, wh-words) is that of turning an open sentence \ulcorner a sentence that has at least one free variable \urcorner into a one-place property.

We suggest that a natural interpretation of the relative marker in Montague grammar leads to the conclusion that the relative marker \ulcorner wh-words, that \urcorner is an abstracter or lambda operator. The rule which forms a relative clause out of a relative marker and an open sentence corresponds to an operation of functional abstraction in IL.

(9) he comes \rightarrow come' (x)

(10) who comes \rightarrow λx come' (x)

(10) designates the function which for any value u of x , yields the value come' (u). (10) is an abstract. Starting from the same open sentence, one might easily form distinct one place properties by binding different variables. Compare :

(11) he₀ loves him₁ love' (x,y)

(12) who loves him λx love' (x,y)

(13) whom he₀ loves λy love' (x,y)

(11) is a t phrase, a formula. Under a given assignment g , to the variables, the formula is true if $V_{i,j,g}(x)$ and $V_{i,j,g}(y)$ are such that $V_{i,j,g}(x)$ and $V_{i,j,g}(y) \in V_{i,j,g}$ love' (x,y), where love' (x,y) is a binary predicate, whose extension is the set of pairs x,y that satisfy love' (x,y) and whose intension is the characteristic property (the function on indices $(i \times j \in I \times J)$ which for each $i \times j$ picks the extension of love' at that index.

(12) and (13) are differently constructed objects. In (12), the variable x is bound by the IL lambda operator (the relative pronoun in syntax). Under a given variable assignment g which assigns an object u to the free variable y , λx love' (x,y) designates the function that for any value assignment of x yields the value

function $\text{love}'(x,u)$; $\lambda x \text{ love}(x,y)$ designates the property of 'loving y', the property of any x who loves y. In the same way (13) designates the one place property of being an y such that $\text{love}'(x,y)$.

This interpretation of relative pronouns provides a clue to the understanding of the semantics of complex terms containing relative clauses, questions and cleft sentences. In IL an abstract can be applied to a term to form an object which has the same denotation as the object that would result from the substitution of the term for the variable bound by the abstract ;

(14) $\lambda u \alpha(u)(v) = \alpha(v)$ [the theorem of lambda conversion]

The same rule is at work in the functioning of relative clauses, questions and cleft sentences ; syntactically the clauses look more like the left member of (14), $\lambda u \alpha(u)(v)$.

(15) the [man [who came]]

(16) Who came ? John

(17) It is John who/that came late.

In (15) the abstract applies to the referent of the antecedent, in (16) v of (14) is the answer term, the abstract (question) applies to the answer term, that is the property that the question expresses is true of the answer. In cleft sentences (17), v of (14) is the focus constituent, the property expressed by the abstract, who came late, is true of the focus constituent John.

We have arrived at a unitary interpretation of RCs, questions and cleft sentences, based on our suggestion that relative/interrogative wh-words, that are lambda operators. [wh-pronouns, however, syntactically differ from that²⁾]. Wh-pronouns are a special class of binders due to their syntax. As shown above [p.32], in English syntax, wh-words are best treated as determiners - say Det_{wh} .

(18) I can get you whatever doll you like.

Which man in the room loves which woman in the room ?

One could say that natural languages make use of restricted binders in the same way that they make use of restricted quantifiers, by allowing the binder or quantifier to be followed by a common noun (phrase) that restricts the range of the bound variable. We are led to the conclusion that the syntax contains relative and interrogative terms [binding terms] obtained by the same rule S_2' , with translation rule T_2' .

(19) If $\alpha \in \left\{ \begin{matrix} P_{Det} \\ P_{Det_{wh}} \end{matrix} \right\}$ and $\beta \in P_{CN}$, then $F_4(\alpha, \beta) \in \left\{ \begin{matrix} P_T \\ P_{T_{wh}} \end{matrix} \right\}$ respectively, and $F_4(\alpha, \beta) = \alpha\beta$.

Binding determiners, like quantifying determiners are constants receiving specific interpretations:

(20) $wh - he \Rightarrow \widehat{Q} \widehat{P} \lambda x [Q\{x\} \wedge P\{x\}]$.

[The analogy with other determiners [above p.21] is obvious].

(21) T_2 If $\alpha \in \left\{ \begin{matrix} P_{Det} \\ P_{Det_{wh}} \end{matrix} \right\}$ and $\beta \in P_{CN}$, and if α, β translate into α', β' respectively, then $F_4(\alpha, \beta)$ translates into $\alpha'(\beta')$
e.g. $F_4(\text{which}, \text{girl}) \Rightarrow \widehat{Q} \widehat{P} \lambda x [Q\{x\} \wedge P\{x\}] (\sim \text{girl}) \Rightarrow$
 $\widehat{P} \lambda x [\text{girl}(x) \wedge P\{x\}]$.

Taking into account the fact that the relative clause $\in P_{ACN}$ and that the relative term binds free variables of open sentences, the category of the relative term is $\frac{ACN}{t}$.

2.0. Starting from the categories we set up, it is possible to give the derivation of wh-relatives in the extended fragment. Syntactic rules will be accompanied by their translation.

The following rules are involved:

(22) S_3 If $\alpha \in P_{ACN/t}$ and $\phi \in P_t$, then $F_{3,n}(\alpha, \phi) \in P_{ACN}$, where $F_{3,n}(\alpha, \phi) = \phi'$ and ϕ' comes from ϕ by replacing the first occurrence of $\begin{Bmatrix} he_n \\ him_n \end{Bmatrix}$ by α and all further occurrences of $\begin{Bmatrix} he_n \\ him_n \end{Bmatrix}$ by $\begin{Bmatrix} he \\ she \\ it \end{Bmatrix}$ or $\begin{Bmatrix} him \\ her \\ it \end{Bmatrix}$ according to the gender of the CN in α .
e.g. $F_{3,2}(\text{which book}, \text{Bill read } him_2) \Rightarrow \text{Bill read which book.}$

T_3 If $\alpha \in P_{ACN/t}$ and $\phi \in P_t$ and α, ϕ translate into α', ϕ' , respectively, then $F_{3,n}(\alpha, \phi)$ translates into $[\alpha'(\hat{x}_n [\phi'])]$.

Remark. S_3 is a rule of relative binding, analogous to quantification rule S_{14} . Syntactically speaking, S_3 might seem superfluous because relative terms always appear in front position. There are however strong metalinguistic arguments in favour of this rule.

- If S_3' is adopted then all terms ($P_T \cup P_{T_{wh}}$) combining with open sentences undergo obligatory lowering rules ; as a consequence of lowering, they are marked for case, according to their function. If this rule were not part of the syntax, relative terms would constitute an exception to this generalization.

- It is strongly desirable to treat relative and interrogative terms in the same way. In the case of interrogative terms, S_3 is obligatory because it is possible to question more than one NP (multiple questions) and only one of the questioned terms is moved in front position.

(23) Where did who go ?

To which country do you pay what ?

When did you see whom ?

As S_3' is obligatory for questions on the basis of empirical evidence, we let it apply to RCs as well:

(24) S_3' If $\phi \in P_{ACN}$ and $\alpha \in P_{ACN}$, and α occurs in ϕ , then

$F_3'(\phi, \alpha) \in P_{ACN}$ and $F_3'(\phi, \alpha) = \phi'$, where ϕ' comes from ϕ by deleting the occurrence of α in ϕ .

e.g. F_3' (Bill read which book) = which book Bill read.

T_3' If $\phi \in P_{ACN}$ and $\alpha \in P_{ACN}$, and α, ϕ translate into α', ϕ' then $F_3'(\phi, \alpha)$ also translates into $\phi' \setminus \alpha'$.

Remark. S_3' is the equivalent of wh-movement. S_3' and S_3 are intrinsically ordered. Further conditions ought to be imposed on the rule to allow the movement of propositions etc.

(25) S_{18}' If $\phi \in P_{ACN}$ and $\lambda \in P_{CN}$ and λ is also the first CN occurrence in P_{ACN} , then $F_4(\phi, \lambda) \in P_{CN}$ and $F_4(\phi, \lambda) = \lambda' \phi'$ where ϕ' comes from ϕ by deleting the first occurrence of λ in ϕ .

e.g. F_4 (book, which book Bill read) \Rightarrow book which Bill read.

T_{18}' If $\phi \in P_{ACN}$ and $\lambda \in P_{CN}$ and λ, ϕ translate into λ', ϕ' respectively then $F_4(\phi, \lambda)$ translates into $\hat{y} \sqsubset \lambda' (y)$ ($\phi' \setminus \lambda'$).

Remark. S_{18}' is a subcase of S_{18} for modifiers $\in CN/1CN$.

T₁₈ takes into account MP 10, given above, in 8.

CN phrases with RCs combine with determiners (by New S₂) to form terms : the book which Bill read.

2.1. The framework we adopted can show the interaction of relative and ordinary quantification. In this respect, Rodman [1976] had expressed the opinion that "in a relative clause the element that is relativized has wider scope than any other element" [p. 168]. He proposed to capture this important generalization by forbidding any variable that appears inside a relative clause to be quantified into. Quantification by T₁₄₋₁₆ precedes relative binding (in RCs). According to Rodman, sentences (26) (his examples p. 168) are non-ambiguous.

(26) a. John dates every woman who loves a cat.

b. John has dated a woman who loves every man.

Geach [1976 : 23] provides the following counterexample to Rodman's conclusion.

(27) The one woman whom every true Englishman honours above all other women is his mother.

Geach's example is naturally paraphrasable as :

(28) It holds good of every true Englishman that the one woman he honours above all other women is his own mother. In this example, every, which is inside the RC, has wider scope than the antecedent (the...).

The derivation of (27) and its desired translation present no problem for the present analysis, as can be seen from the analysis of (29) :

(29) the woman whom every man loves best is his wife, 10, 2

every man, 2 the woman whom he₂ loves best is his mother, 4

the woman whom he₂ loves best, 2 be his₂ mother

the woman whom he₂ loves best, 18

woman which woman he₂ loves best, 3

he₂ loves best which woman, 3, 0

which woman, 2 he₂ loves him₀

$$(30) 1. he_2 \text{ loves him} \Rightarrow \widehat{P} P \{x_2\} . (\widehat{love'} (\widehat{P} P \{x_0\})) \rightarrow$$

$$\rightarrow love'(x_2, x_0) \quad T_4$$

(ordinary simplification rules)

$$2. \text{ which} \Rightarrow \widehat{Q} \widehat{P} \wedge x \widehat{Q} \{x\} \wedge P \{x\} \widehat{J}$$

$$3. \text{ which woman} \Rightarrow \widehat{P} \wedge x \widehat{Q} \{woman'(x) \wedge P \{x\} \widehat{J}$$

$$4. he_2 \text{ loves which woman} \Rightarrow P \wedge x \widehat{Q} \{woman'(x) \wedge P \{x\} \widehat{J} (\widehat{x}_0$$

$$love'(x_2, x_0)) \rightarrow$$

$$T'_3 (= T_{14})$$

$$\rightarrow \wedge x \widehat{Q} \{woman'(x) \wedge \widehat{x}_0 \text{ love'}(x_2, x_0) \} x \widehat{J}$$

Abstraction Application

$$\rightarrow \wedge x \widehat{Q} \{woman'(x) \wedge love'(x_2, x) \widehat{J}$$

Brace Convention, Down-Up
Cancellation.

Abstraction Application

$$5. \text{ woman who he loves} \Rightarrow$$

$$\wedge y (woman'(y) \wedge \wedge x \widehat{Q} \{woman'(x) \wedge love'(x_2, x) \widehat{J} (y))$$

T'18

$$\rightarrow \wedge y \widehat{Q} \{woman'(y) \wedge woman'(y) \wedge love'(x_2, y) \widehat{J}$$

Abstraction Application

$$\rightarrow \wedge y \widehat{Q} \{woman'(y) \wedge love'(x_2, y) \widehat{J}$$

Elimination of redundant terms

$$6. \text{ the} \Rightarrow \widehat{P} \widehat{Q} \widehat{V} z \widehat{Q} \{ \wedge x \widehat{Q} \{ P \{x\} \leftrightarrow x = z \} \wedge Q \{z\} \widehat{J}$$

$$7. \text{ the woman whom he loves best} \Rightarrow$$

$$\widehat{P} \widehat{Q} \widehat{V} z \widehat{Q} \{ \wedge x \widehat{Q} \{ P \{x\} \leftrightarrow x = z \} \wedge Q \{z\} \widehat{J} (\wedge y \widehat{Q} \{woman'(y)$$

$$\wedge love'(x_2, y) \widehat{J}$$

T'2

$$\rightarrow \widehat{Q} \widehat{V} z \widehat{Q} \{ \wedge x \widehat{Q} \{ \wedge y \widehat{Q} \{woman'(y) \wedge love'(x_2, y) \} \{x\} \leftrightarrow x = z \} \wedge Q \{z\} \widehat{J}$$

Abstraction Application

$$\rightarrow \widehat{Q} \widehat{V} z \widehat{Q} \{ \wedge x \widehat{Q} \{woman'(x) \wedge love'(x_2, x) \leftrightarrow x = z \} \wedge Q \{z\} \widehat{J}$$

Brace Convention, Down-Up Cancellation, Abstraction
Application

$$8. \text{ is his wife} \Rightarrow \text{wife' of } (z_0, x_2)$$

10. the woman whom he_2 loves (best) is his wife \Rightarrow

$$\widehat{Q} \text{ Vz } \widehat{\wedge} x \widehat{\wedge} \text{woman}'(x) \wedge \text{love}'(x_2, x) \widehat{\wedge} x = z \widehat{\wedge} Q \{z\} \widehat{\wedge} (\widehat{z}_0 \text{wife}'\text{-of}(z_0, x_2)) \rightarrow$$

$$\rightarrow \text{Vz } \widehat{\wedge} x \widehat{\wedge} \text{woman}'(x) \wedge \text{love}'(x_2, x) \widehat{\wedge} x = z \widehat{\wedge} \widehat{z}_0 \text{wife}'\text{-of}(z_0, x_2) \{z\} \widehat{\wedge}$$

T₄
Abstraction Application

$$\rightarrow \text{Vz } \widehat{\wedge} x \widehat{\wedge} \text{woman}'(x) \wedge \text{love}'(x_2, x) \widehat{\wedge} x = z \widehat{\wedge} \widehat{z}_0 \text{wife}'\text{-of}(z_0, x_2)(z) \widehat{\wedge}$$

Brace Convention, Down-Up Cancellation

$$\rightarrow \text{Vz } \widehat{\wedge} x \widehat{\wedge} \text{woman}'(x) \wedge \text{love}'(x_2, x) \widehat{\wedge} x = z \widehat{\wedge} \text{wife}'\text{-of}(z, x_2) \widehat{\wedge}$$

Abstraction Application

Notice that in the last line, although inside a RC, x_2 is still open for quantification.

$$11. \text{ every } \Rightarrow \widehat{Q} \widehat{P} \wedge x_3 \widehat{Q} \{x_3\} \rightarrow P \{x_3\} \widehat{\wedge}$$

$$12. \text{ every man } \Rightarrow \widehat{Q} \widehat{P} \wedge x_3 \widehat{Q} \{x_3\} \rightarrow P \{x_3\} \widehat{\wedge} (\text{man}') \rightarrow$$

$$\rightarrow \widehat{P} \wedge x_3 \widehat{\wedge} \text{man}'(x_3) \rightarrow P \{x_3\} \widehat{\wedge}$$

T₂

Abstraction Application, Brace Convention, Down-Up Cancellation

13. the woman whom every man loves (best) is his wife \Rightarrow

$$\widehat{P} \wedge x_3 \widehat{\wedge} \text{man}'(x_3) \rightarrow P \{x_3\} \widehat{\wedge} (\widehat{x}_2 \text{Vz } \widehat{\wedge} x \widehat{\wedge} \text{woman}'(x) \wedge \text{love}'(x_2, x) \widehat{\wedge} x = z \widehat{\wedge} \text{wife}'\text{-of}(z, x_2)) \rightarrow \widehat{\wedge} x_3 \widehat{\wedge} \text{man}'(x_3) \rightarrow$$

T₁₄

$$(\widehat{x}_2 \text{Vz } \widehat{\wedge} x \widehat{\wedge} \text{woman}'(x) \wedge \text{love}'(x_2, x) \widehat{\wedge} x = z \widehat{\wedge} \text{wife}'\text{-of}(z, x_2)) \{x_3\} \widehat{\wedge}$$

Abstraction Application

$$\rightarrow \wedge x_3 \widehat{\wedge} \text{man}'(x_3) \rightarrow (\widehat{x}_2 \text{Vz } \widehat{\wedge} x \widehat{\wedge} \text{woman}'(x) \wedge \text{love}'(x_2, x) \widehat{\wedge} x = z \widehat{\wedge} \text{wife}'\text{-of}(z, x_2)) \{x_3\} \widehat{\wedge}$$

$$\rightarrow x = z \widehat{\wedge} \text{wife}'\text{-of}(z, x_2)(x_3) \widehat{\wedge}$$

Brace Convention

$$\rightarrow \wedge x_3 \widehat{\wedge} \text{man}'(x) \rightarrow \text{Vz } \widehat{\wedge} x \widehat{\wedge} \text{woman}'(x) \wedge \text{love}'(x_2, x) \widehat{\wedge} x = z \widehat{\wedge} \text{wife}'\text{-of}(z, x_2) \widehat{\wedge}$$

Down-Up Cancellation, Abstraction Application

However Rodman is correct in as much as in most cases the antecedent has wider scope than any quantifier inside the clause as in example (31) translated in (32).

(31) the woman whom every man loved is Greta Garbo, 4

the woman whom every man loved, 2 ; be Greta Garbo

the woman whom every man loved, 18

woman which woman every man loved, 3

every man loved which woman, 3, 0

which woman, 2 every man loved him₀

which woman every man, 2 he₂ loved him₀, 4

(32) (abridged)

1. he₂ loved him₀ \Rightarrow love'(x₂, x₀)

2. every man loves him₀ $\Rightarrow \bigwedge x_3 \big[\text{man}'(x_3) \rightarrow \text{love}'(x_3, x_0) \big]$

3. which woman $\Rightarrow \widehat{P} \big[x \big[\text{woman}'(x) \wedge P\{x\} \big] \big]$

4. every man loves which woman \Rightarrow

$\bigwedge x \big[\text{woman}'(x) \wedge \bigwedge x_3 \big[\text{man}'(x_3) \rightarrow \text{love}'(x_3, x) \big] \big]$

5. which woman loves every man \Rightarrow

$\bigwedge x \big[\text{woman}'(x) \wedge \bigwedge x_3 \big[\text{man}'(x_3) \rightarrow \text{love}'(x_3, x) \big] \big]$

6. woman whom every man loves \Rightarrow

$\bigwedge y \big[\text{woman}'(y) \wedge \bigwedge x_3 \big[\text{man}'(x_3) \rightarrow \text{love}'(x_3, y) \big] \big]$

7. the woman whom every man loves \Rightarrow

$\widehat{P} \big[\bigvee z \big[\bigwedge y_0 \big[\text{woman}'(y_0) \wedge \bigwedge x_3 \big[\text{man}'(x_3) \rightarrow \text{love}'(x_3, y_0) \big] \big] \leftrightarrow y_0 = z \big] \wedge P\{z\} \big]$

8. Greta Garbo $\Rightarrow \widehat{P} \big[P\{g\} \big]$

9. the woman whom every man loves is Greta Garbo

$\bigvee z \big[\bigwedge y_0 \big[\text{woman}'(y_0) \wedge \bigwedge x_3 \big[\text{man}'(x_3) \rightarrow \text{love}'(x_3, y_0) \big] \big] \rightarrow y_0 = z \big] \wedge z = g \big]$

Still, why is the antecedent more often interpreted as having wider scope? We believe that the explanation has to do with perceptual constraints. Lakoff [1969, 1971] showed that the interpretation of quantifier scope has to do with primacy relations: the quantifier that bears more primacy relations is interpreted as having wider scope [the two primacy relations an 'precede'

and 'command' J. Compare now (33) and (34):

(33) every man loves a woman

(34) every man who loves a woman.

In (33) every man precedes a woman, it commands a woman and is commanded by it. In (34); every man precedes a woman, and as a matrix constituent, it commands a woman without being commanded by it. In both (33) and (34) every man is more prominent than a woman, but in (34) it is even more prominent than (33), and this explains why on the strongly preferred reading of (34), and preferred reading of (33), every has wider scope than a. PTQ syntax would be consistent with the interactionist proposed by Bever [1975], which allows the elimination of certain derivations [those involving global rules] on the basis of perceptual constraints.

3.0. Extension of the analysis to questions. It has been noticed that many widely different languages use the same set of pronouns in questions and relative clauses. However most grammars speak of two distinct classes of pronouns, relative pronouns and interrogative ones; there appears to be no reason why there may be more similarities between relatives and interrogatives than there are between, say, relatives and demonstratives.

Moreover, recent syntactic study showed that in addition to the morphemic, paradigmatic similarity of the pronouns, there are important syntactic properties that relative and interrogative clauses share:

a) the syntax of both involves a movement or copying rule [wh-Fronting and Relativization] which places the wh-word in front position.

b) Both wh-Fronting and Relativization obey Ross's constraints

[see Ross, 1967]

* Who and John came?

* The boy who and John came.

c) Elements which are relativized and questioned are given thematic prominence. This has been widely acknowledged for wh-questions, [the wh-word is the expected or unmarked theme: Which house did you buy? Quirk, 1972 : 945] but has only of late been discussed in connection with relatives [see Kuno (1975), Langacker (1974)]

Kuno [1975 : 301] claims that "only a constituent that qualifies as the theme of a clause can be relativized". Furthermore, there are cases when owing to the fact that a given RC can be viewed as a statement about the antecedent - it is possible to relativize even out of syntactic islands and to get results which are more or less acceptable [op.cit : 302].

- (35) a. ^{xx} This is the child who John married a girl who dislikes.
 b. ?? This is the child who I know a family which is willing to adopt.
 c. ? This is the child who there is nobody who's willing to adopt.

"The ease with which one can interpret these sentences as statements about the child increases from a to c, and the degree of grammaticality correlates with this fact" [Kuno op.cit. 303]. Note that all of (35) violate Ross's Complex NP Constraint.

d) For a given language, there is the same hierarchy of environments out of which one can question or relativize, described by Keenan and Comrie's (1977) Hierarchy of Accessibility.

3.1. Significant findings in the semantics of questions. The more recent literature on the subject [Hull (1975), Cresswell (1973), Hintikka (1974), Hamblin (1976), Karttunen (1972, 1977), Bennett (1977)] has shown that it is possible to develop a semantic theory of questions which is not pragmatic, in the sense that it does not make use of the concepts of context, speaker, illocutionary force etc.

The dialogical or conversational feature of questions is captured in the relation established, between questions and strings that can qualify as answers. Thus, Hull's analysis relies on the definition "of the question - answer pair". Questions themselves are semantically the sort of thing that makes a proposition from an answer phrase but they do not themselves carry any truth values [1973 : 6].

An important point of view, and one to which we subscribe is that questions denote sets of propositions : "we shall need to regard 'who walks' as itself denoting a set, namely, the set whose members are the propositions denoted by 'John walks', 'Mary walks'" [Hamblin 1976 : 254]. Karttunen (1977) and Bennett (1977) working within the framework of PTQ, introduce the category of Basic

Questions $\ulcorner = BQ \urcorner$, which underlie both direct and indirect questions $\ulcorner \neg BQ, IQ \urcorner$. According to them BQs denote only the set of their true or correct answers \ulcorner not the set of true and false answers \urcorner . "A basic question will have as its translation in IL an expression of type $\langle s, t \rangle$. That is, we regard basic questions as having as their extension at a point of reference a set of propositions. These propositions are to be regarded as the set of correct or true answers" \ulcorner Bennett, 1977 : 280 \urcorner . Both Karttunen and Bennett treat wh-words as members of interrogative terms, but the particulars of their analysis differ. With Karttunen, interrogative terms are introduced, by a rule similar to sentence quantification (S_{14}), into an already formed basic question (proto-question in Karttunen's terminology). Interrogative pronouns get the same translation as the indefinite some (in an attempt to capture question presupposition at this level of the analysis).

"(32) Wh-Phrase rule - If $\bar{z} \in P_{CN}$ then which \bar{z} and what $\bar{z} \in P_{T_{wh}}$.

If \bar{z} translates into \bar{z}' , then which \bar{z} and what \bar{z} translate into $\hat{P} \forall x \ulcorner \bar{z}'(x) \wedge P\{x\} \urcorner$. \ulcorner Karttunen, 1977 : 19 \urcorner .

Thus the translation of 'who dates Mary?' is obtained by quantifying into the proto-question 'he_n dates Mary'.

(36) who $\Rightarrow \hat{P} \forall x P\{x\}$

? he₁ dates Mary $\Rightarrow \hat{P} \ulcorner p \wedge p = \wedge \text{date}'_x (\vee x_1, m) \urcorner$

who dates Mary $\Rightarrow \hat{P} \ulcorner \text{who}'(x_1) ? \text{he}_1 \text{ dates Mary}(p) \urcorner$

$\Rightarrow \hat{P} \forall x \ulcorner \vee p \wedge p = \wedge \text{date}'_x (\vee x_1, m) \urcorner$

Syntactically, the wh-term is not lowered into the sentences, but it replaces the initial syntactic marker '?' of the pro-quation. For multiple questions, further wh-terms are lowered into the sentence without undergoing wh-fronting. \ulcorner Karttunen op.cit. : 24 \urcorner .

(37) a) Who dates which girl?

b) $\hat{P} \forall y \forall x \ulcorner \text{girl}'(y) \wedge p = \wedge \text{date}'_x (\vee x, \vee y) \urcorner$

Remark. In the translation of 37 a, which girl \ulcorner i.e. the term quantified in last \urcorner has wider scope than who, although it is preceded by who.

Bennett's analysis is syntactically simpler : BQ are directly generated by combining, wh-terms with open sentences; - wh-terms turn open sentences into basic questions (they belong to the category BQ). According to the general patterns of quantification rules,

wh-terms are first lowered into the open sentence replacing a free variable, and then they undergo wh-movement.

Bennett does not say anything about the role of the wh-pronoun. He only says that the form of the question determines the form of the (set of) answers which count as denotations of the question. "Consider what would count as an answer to the question "Which man does Mary love" ? Intuitively all correct answers would explicitly or implicitly have the form the man that Mary loves is α . In the envisaged semantics α will be a definite description or a proper name" [op.cit. 281]. BQs are turned into DQs or IQs by the known syntactic operations (transformations), including wh-Movement.

Bennett's analysis allows for the mixing of "interrogative" and "ordinary" quantification, accounting for the ambiguity of (38) by means of scope differences.

- (38) a. Which woman does every man love ?
 b. The woman that every man loves is Greta Garbo.
 c. The women that every man loves is his mother.

In Bennett's analysis, with multiple questions, the wh-term that undergoes wh-movement is the one which is quantified in last. This analysis correctly predicts that the correct answers to questions like (39) are of type (40), with which man having wider scope than which woman.

(39) Which man does which woman love ?

(40) Bill is loved by Jane.

Karttunen's analysis would attribute wider scope to which woman which is lowered in the sentence after the first wh-term, the man, which remains in front position, replacing the syntactic marker ? of the proto-question. A more serious problem is that Karttunen cannot generate sentence (41), because of his assumption that the term which is in front position is quantified in first. Accordingly the first break up of (41), yields the incorrect (42).

(41) Which man loves which woman that he knows.

(42) which woman \times which man loves he₀ that he knows.

3.2. On the whole, on grounds of simplicity and empirical adequacy, we prefer Bennett's analysis. At the same time we suggest a

modification in the semantic representations of questions, which retains the advantages of Bennett's analysis, while at the same time treating wh-pronouns as a semantically unitary class.

The answer to which man Mary loves (P_{BQ}) can be represented as the set of propositions determined by the expression (43)

$\lambda x \lambda m [man'(x) \wedge love'(m, x)](\alpha)$ (where α is an abbreviatory term variable). Question formation involves functional abstraction, and the function determined by functional abstraction is then applied to any term - a proper name or definite description, which is the correct answer. Wh-words continue to be analysed as lambda operators.

We here give the syntactic analysis [same as Bennett's op.cit.] and our semantic translation.

(44) which woman does every man love, DO

every man loves which woman, BQ

every man, 2 he_a loves which woman, BQ

which woman, 2 he_o loves him_o

(45) (abridged)

1. he_o loves him₁ \Rightarrow love'(x_o, x₁)

2. which woman $\Rightarrow \hat{P} \lambda x [woman'(x) \wedge P\{x\}]$

3. he_o loves which woman $\Rightarrow \hat{P} \lambda x [woman'(x) \wedge P\{x\}](x, love'(x_0, x_1)](\alpha) \rightarrow \hat{x} [woman'(x) \wedge love'(x_0, x)](\alpha)$

4. every man loves which woman

$\hat{P} \wedge y [man'(y) \rightarrow P\{y\}](\lambda x [woman'(x) \wedge love'(x_0, x)](\alpha))$

$(\alpha)) \rightarrow \wedge y [man'(y) \rightarrow \lambda x [woman'(x) \wedge love'(y, x)](\alpha)]$

Abstraction Application and ordinary simplification rules

The last line is equivalent by lambda conversion with (46)

(46) $\wedge y [man'(y) \rightarrow woman'(\alpha) \wedge love'(y, \alpha)]$

(46) (or the last line of 45) is the desired representation for answers of type 38 c, where every man has wider scope than which woman. The second reading of the question is translated as (47) or (48).

or (48).

(47) $\lambda x_0 \lambda \text{woman}'(x_0) \wedge \lambda x \lambda \text{man}'(x) \longrightarrow \text{love}'(x, x_0) \lambda (\alpha)$

(48) $\text{woman}'(\alpha) \wedge \lambda x \lambda \text{man}'(x) \longrightarrow \text{love}'(x, \alpha) \lambda (\beta)$

Like Bennett (1977) we can make the difference between (49) and (50), allowing the leftmost wh-term to have wider scope.

(49) a. Which man does which woman love ?

b. $\lambda y \lambda \text{man}'(y) \wedge \lambda x \lambda \text{woman}'(x) \wedge \text{love}'(x, y) \lambda (\alpha) \lambda (\beta)$

(50) a. Which woman loves which man ?

b. $\lambda y \lambda \text{woman}'(y) \wedge \lambda x \lambda \text{man}'(x) \wedge \text{love}'(y, x) \lambda (\alpha) \lambda (\beta)$

3.3. To understand the importance of functional abstraction in the analysis of cleft sentences, see Halvorsen (1972).

4. Conclusions. 4.1. In this section we have found that in addition to their common formal properties - and accounting for them - wh-words have an important common semantic property - that of functioning as sui-generis lambda operators. It is thus possible to find a semantic core, common to relative and interrogative pronouns. They receive the same IL translation.

4.2. Wh-words are underlying determiners and surface pronouns or determiners. In that capacity they have nominal features, which λ -"restrict" them, give information about the bound variable. Wh-determiners combine with common nouns /by New S₂) to form relative or interrogative terms. The syntax of wh-terms is essentially similar, both combine with open sentences, but they produce strings of different categories. BQ and ACN; BQ and ACN are different categories and this accounts for differences in the syntax of questions and relative clauses. λ -although we have seen that there is much that P_{BQ} and P_{ACN} have in common. Our results confirm those of Manoliu Manea (1967) who, using the method of distributional analysis claimed that relative and interrogative pronouns are variants of the same class: "Așadar nu se poate vorbi despre existența unei anumite relații de substituție caracteristice pentru seria de valori de "interogative" sau pentru cea "relativă". Diversele valori care se desosebesc numai prin posibilități combinatorii sintagmatice și dovedesc a fi variante poziționale ale aceleiași categorii de pronume. λ -op.cit. : 78]. In our analysis these positional classes are distinguished in terms of the categorial index of the phrases where these determiners occur :

$P_{\frac{BQ}{t}}$ (interrogative terms), $P_{\frac{ACN}{t}}$ (relative term). This implies a specification of rule New S_2 ((19) above), as follows :

$$(51) \quad \text{If } \alpha \in \left\{ \begin{array}{l} P_{\text{Det}} \\ P_{\text{Det wh}} \end{array} \right\} \text{ and } \beta \in P_{\text{CN}}, \text{ then}$$

$$F_4(\alpha, \beta) \in \left\{ \begin{array}{l} P_T \\ P_{\text{Twh}} (P_{\frac{BQ}{t}} \cup P_{\frac{ACN}{t}}) \end{array} \right\} \text{ respectively, and } F_4(\alpha, \beta) = \alpha\beta$$

4.3. Our analysis involves a reformulation of the rule of proposition quantification $\left[S_{14} \text{ in PTQ} \right]$ which combines ordinary terms and formulas. T_{14} will remain unchanged :

$$(52) \quad \text{New } S_{14} \quad \text{If } \alpha \in P_T \text{ and } \emptyset \in \left\{ \begin{array}{l} P_t \\ P_{BQ} \\ P_{ACN} \end{array} \right\}, \text{ then}$$

$$F_{10,n}(\alpha, \emptyset) \in \left\{ \begin{array}{l} P_t \\ P_{BQ} \\ P_{ACN} \end{array} \right\}, \text{ respectively, where either (i) } \alpha$$

does not have the form he_k , and $F_{10,n}(\alpha, \emptyset)$ comes from \emptyset by replacing the first occurrence of he_n or him_n by α and all other occurrences of he_n or him_n by $\left\{ \begin{array}{l} he \\ she \\ it \end{array} \right\}$ or $\left\{ \begin{array}{l} him \\ her \\ it \end{array} \right\}$, respectively,

according as the gender of the first B_{CN} or B_T in α is $\left\{ \begin{array}{l} \text{maso} \\ \text{fem} \\ \text{neuter} \end{array} \right\}$,

or (ii) $\alpha = he_k$, and $F_{10,n}(\alpha, \emptyset)$ comes from \emptyset by replacing all occurrence of he_n or him_n by he_k , or him_k , respectively. New S_{14} shows that ordinary terms combine with proposition-based constructions without changing the syntactic category of the string they combine with. In contrast, T_{wh} phrases change the category of t phrases when combining with them, into P_{BQ} or P_{ACN} .

4.4. At the same time, Tesnière analysis of relatives may be reinterpreted from a semantic perspective : "Le pronom relatif est un mot de nature double ... nous réserverons le nom de transféréme à l'élément du pronom relatif auquel incombe la fonction translativie et le nom d'anaphorème à celui auquel incombe la fonction anaphorique". [Tesnière, 1959 : 560 - 561]. The "fonction translativie" can be viewed not only as a change of syntactic status [an independent clause turns into a subordinate one], but also as a change of semantic category - a

proposition (type $\langle s, t \rangle$) into a one place property
(type $\langle s \langle \langle s, e \rangle, t \rangle, \langle \langle s, e \rangle, t \rangle \rangle$).

In addition, relative pronouns contract anaphoric relations with their implicit or explicit antecedents.

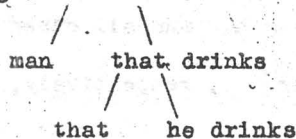
4.5. The choice of our formalization for questions rather than Bennett's, is an instance of how syntactic considerations [the overlap of relative and interrogative pronouns] can influence semantic decisions.

Notes

1) For simple adjective, as distinct from adjective phrases (tall man vs man willing to do it) rule S_{18} is to be followed by another rule that shifts the adjective in front of the noun.

2) Semantically that is also an abstractor, but syntactically it is not a pro(nominal) element, but a conjunction; we can index it ACN/t and allow it to combine with open sentences.

e.g. man that drinks



1) he drinks \Rightarrow drink' (x)

2) that drinks \Rightarrow \bar{x} drink' (x)

3) boy that drinks \Rightarrow \bar{y} [boy(y) \wedge drink'(y)]

C. Difficulties with PTQ syntax, a Comparison with an 'Aspects' Syntax.

0.0. In UG, Montague had imposed only extremely general constraints on syntax, having to do ^{with} its algebraic structure and with the homomorphic relation between syntax and semantics. The intention was to "explain how semantics can be done without prejudicing the issues as to what syntax is like any more than is absolutely necessary for a systematic connection between syntax and meaning" [Dowty, 1978 : 107]. Following this strategy, in the preceding section we presented a compositional semantics for RRCs, treating relative and interrogative wh-words as members of the 'same syntactic and semantic class. In the following chapters, we extend the syntactic (and semantic) analysis so as to encompass the whole range of English and Romanian RRCs. Before embarking on the analysis proper, we suggest, in this section, that a version of classical transformational syntax, which is semantically constrained, in the sense that it is compatible / homomorphic with model-theoretic compositional semantics proves to be descriptively more adequate than the syntax of PTQ. We therefore choose to use a grammar which couples a Chomskyan syntax with a Montague semantics.

0.1. An important preliminary problem is whether, or to what extent, one can, without methodological inconsistency, construct a model that borrows elements from MG and GTG.

Kasher [1976 : 133] had rightly warned that Chomskyan grammar and Montague grammar "represent tentative solutions to different problems". The two writers differ in their philosophical assumptions, in their conception of natural languages and linguistics. While both theories try to define the notion of 'possible natural language', this task is differently understood by the two authors. Montague attempts to solve this problem within a mathematical framework ; his basic assumption is that "there is no important theoretical difference between natural languages and the artificial languages of symbolic logic. [UG : 222] ; by suitably constraining a class of formal languages one can obtain the class of possible natural languages", whose very general formal properties could be specified in a universal grammar. As hinted before, UG can be interpreted as a theory regarding the mathematical structure of natural and formal languages. It is significant that both the PTQ syntax of English (a natural language) and the syntax of IL (an artificial language)

represent particularizations of the same "universal grammar". Language universals are general mathematical properties of language. The syntax and semantics of natural languages will be worked out within the framework of the same logical mathematical semiotic. Montague thus proposes a mathematical interpretation of the notions of natural language, and language universals.

Chomsky assumes that linguistics, and GTG in particular, is an empirical natural science, a branch of (cognitive) psychology. The central issue - philosophical and empirical - the issue which structures generative theory is that of language acquisition; language is successfully acquired by any individual because he is endowed with an input - output device, which, on the basis of the empirical data (input) produces a correct output, and which is (representable as) a formalized grammar.

The formalized grammar is a set of rules that generates all and only the correct sentences of L. Moreover, the formalized grammar is a hypothesis on the internalized knowledge of the speakers, on the rules that actually govern speakers' linguistic behaviour i.e. the production and understanding of L-sentences.

The principles that determine the class of possible grammars, and also determine the selection of a grammar of the appropriate sort on the basis of the data constitute the domain of universal grammar or linguistic theory. The totality of properties that are common to all human languages make up the set of language universals. According to Chomsky (1965) language is successfully acquired because a linguistic theory (or some analogue of one) is part of the speaker's innate endowment. Language universals are thus psychologically determined, 'rooted in the human 'faculté de langage' : the study of universal grammar is a study of the nature of 'human intellectual capacities'.

Remark. In evaluating Chomskyan grammar one should make a clear distinction between the systematic theory of language itself and the theory of (ordinary) language acquisition. Linguistic research in GTG attaches to the first domain ; it is hoped that the results obtained, in conjunction with experimental work, will lead to a proper theory of language acquisition. (See Stegmüller, 1969, 528-539).

The theoretical difference between Chomsky and Montague is considerable and should be duly acknowledged.

However, it is important that over and above their different theoretical stand, which refers to the position of (theoretical) linguistics among sciences, the two authors share a common methodology.

Both authors agree that the grammar of a particular language cannot be elaborated unless and until there is formulated a linguistic theory or universal grammar, which should be a specification of the mathematical entities with respect to which particular structural linguistic theories are to be developed. Chomsky's Logical Structure of a Linguistic Theory, Montague's Universal Grammar are explicit attempts at formulating a mathematical matrix for linguistic description, a theory of the linguistic metalanguage. Both works refer to the logical framework of scientific construction in linguistics and they have a prescriptive character regarding the admissible formulations of linguistic knowledge.¹⁾

With both authors, grammar construction is a deductive procedure, induction plays an important part in the heuristics and confirmation of grammars, not in their actual formulation.

Statistical considerations play no part in either type of grammar.

An important common point is the emphasis that both authors lay on the requirement of the explicitness of linguistic description. It is well-known that Chomsky's most important criticism of traditional grammars was that the latter usually presupposed the existence of an intelligent reader who, for instance, in foreign - language learning, could bridge the gap between the explicitly stated rules in a grammar and what the foreign - language actually was like, mostly on the basis of what he intuitively knew about natural language structure. The same sort of criticism may be levelled at logicians who analyse reasoning in natural languages ; they presuppose the existence of an intelligent reader who can establish a systematic connection between the expressions of a standard predicate calculus and ordinary language sentences.

Chomsky and Montague insist that syntactic and semantic descriptions should be explicit, formalization should follow precisely stated rules, the degree of precision must be that of an algorithm.

The universal grammar or matrix for structural linguistics offers not only a framework for the logical analysis and comparison of linguistic theories but it also furnishes a criterion for the evaluation of given linguistic descriptions. It is agreed in MG

and GTG on at least two adequacy criteria for linguistic descriptions:

1. external (descriptive) adequacy ; the grammar should produce all and only the well-formed sentences of a language.
2. internal (explanatory) adequacy. The form of the grammar should follow the stipulations made by the linguistic meta-theory.
3. Chomskyan grammar incorporates a supplementary criterion of explanatory adequacy, to the effect that the grammar (and also the linguistic theory) should be psychologically real and physically realisable. Hence, for instance, the rules should be finite and of limited complexity. Hence, also, descriptions which receive psycho-linguistic confirmation are more highly valued etc. This criterion reflects the above mentioned generativist conception of language and linguistic universals. However, anyone familiar with the generativist literature knows with certainty that plausible (- in terms of the first two criteria -) GTG rules have never been rejected just 'because available psycholinguistic evidence did not support them'; thus TG practice points to a certain de facto independence of linguistics' [Itkonen 1975 : 402], which is not unjustifiable.

An analysis of MG and GTG from the point of view of the philosophy of science, undertaken in Măinea (1978) suggests that Montague and Chomsky place themselves within the methodological tradition of logical empiricism; scientific construction follows the pattern of natural sciences, scientific analysis makes use of the deductive nomological explanation. Both authors understand formalization in linguistics as an application of logical mathematical theories within a mathematical semiotic, both use in different forms, results obtained in the theory of deductive systems. This common framework of metatheoretical thought is responsible for the similarities noticed above and it makes of Chomsky and Montague representatives of what Măinea(1978) aptly called 'lingvistica în ipostaza ei explicativă'.

0.1.2. The significance of this common methodology as well as the more profound compatibility of the two approaches can be grasped fully in the light of Itkonen's (justified, we think) criticism of TG as metascience, whereby he claims that TG cannot be a natural science, so that the results obtained in the description of language

will not automatically have psychologic relevance.

Itkonen's discussion centers round the difference between natural and human sciences. The former gain knowledge by observation, and operate with 'regularities' (or laws, instantiated by observable phenomena) which propose causal testable explanations for empirical phenomena. The latter are based on conceptual analysis and operate with 'rules' instantiated by intentional actions. "Such disciplines are not empirical sciences making hypothetical descriptions about what is or will be done as a matter of fact, rather they are systematizing descriptions attempting to calculate all "possible correct actions" (1975 : 397), irrespective of whether and under what circumstances such actions are actually produced. Itkonen claims that TG is a human, not a natural science.

TG is indeed a formal account of the intuitive knowledge of the native speaker ; but the speaker's knowledge must be viewed as agent's knowledge, in the sense that he can produce sentences [= he can perform intentional actions] which conform to the rules of the language L, understood as known, (socially) normative, atheoretical rules. Itkonen insists that if one rejects the logical priority of private languages over intersubjective languages, then the atheoretical rules of L can only be understood as normative, social rules.

TG reconstructs and systematizes the speaker's intuitive knowledge in that it attempts to replace the [numerous] known atheoretical rules, [which produce the speaker's correct linguistic behaviour and represent his agentive knowledge] with theoretical or grammatical rules which the speaker need not know in any sense of the word.³⁾ "A linguistic description does not in itself force us into making the additional psycholinguistic assumption that our description is somehow represented in the brain" [Itkonen 1975 : 397]. TG is factually independent from psycholinguistics [= PL]. TG is best viewed as an 'explication' (not explanation) or conceptual analysis of the notion 'correct sentence of L'. The elaboration of a TG is more like ^{the} systematization and formal reconstruction of a body of atheoretical knowledge ; the construction is done in accordance with certain standards of formalization, discussed above. Like MC, TG is a grammar of success.

It is not devoid of interest to mention that recent PL research has also argued that PL ought to be independent of the specific TG

formalism and analytical assumptions. The domain of PL has come to be viewed as that of a theory of 'performance', (opposed to TG, which is a theory of 'competence'), which should offer a theory of speech production and speech perception, as well as a theory of language acquisition; such a theory will use its own specific, natural science methodology, (including experiment, statistical analysis a.s.o.).

Thus conceived, a theory of performance would be complementary to a TG or MG; (we are again reminded of the similar complementarity of semantic theories of understanding and theories of success). Each is a source of heuristic suggestions for the other, serving as a guide for a more efficient research strategy, for proposing hypotheses etc. To give an example, the marked similarity of certain performance models [e.g. Straight (ms)] with the often criticized models of competence cannot be mere coincidence; more importantly, each serves as a measure of success offering supplementary criteria for accepting an analysis, for selecting between rival explanations etc. Thus linguistic descriptions should not use formal mechanisms which are psychologically unrealisable [see Partee, 1977].

As stressed in Lieberman [1974] linguistic grammars, psychological, sociological theories of language etc. will have to be axiomatized and integrated into more comprehensive theories, characterizing language as a structural system and as a means of human communication.

0.1.3. In view of our future analysis we mention here the interesting conception of the 'interactionist' approaches summarized in Bever [1975]. Such approaches claim that grammatical and PL research are independent but interacting domains. They attempt to explain formal properties of strings as a function of one of the three behavioural systems with which the grammar 'interacts' (language learning, speech production, speech perception).

According to Bever [1975 : 590] "the importance of the interactionist program is that it allows us to state which facts about languages are due to behavioural systems and which are due to formal grammatical universals". The major suggestion is that one can reduce the descriptive power of the grammar and eliminate certain powerful types of rules [= global rules] by explaining certain language facts directly in terms of behavioural systems, without recourse to the grammar. [for an example, see Cornilescu

[1977].

1. Having concluded on the theoretical and methodological compatibility of MG and TG, we turn to a comparison of a PTQ syntax with an 'Aspects' syntax ; we suggest that the latter is descriptively more adequate.

Essentially we argue that : a) for several reasons, (some of which have to do with the syntax - semantics relations, it is desirable in PTQ to make a difference between an underlying and a surface level of syntax with transformations mapping the former onto the latter ; b) the implementation of transformations require a rather - drastic change in the over-all form of PTQ syntax, so that we prefer to use an Aspects syntax instead.

1.0. Categorization problems. A central aspect of the syntax - semantics correspondence is the type assignment function which maps syntactic categories onto IL types. Basic and derived PTQ phrases are all assigned to some syntactic category. For derived strings, the category is uniquely determined by the operation - category of the syntactic operation [section A p.6]. There remains the problem of category assignment for basic expressions.

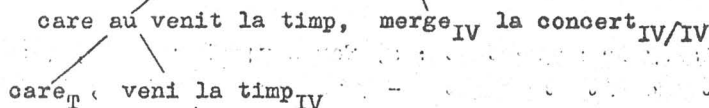
There are important arguments against indexing basic expressions in terms of (all of) their surface contexts.

1.1. Bar - Hillel [1964 : 86] mentions the familiar problem of discontinuous constituents. He shows that up should be assigned to the same category in both He looked up the word and in He looked the word up.

1.2. Another familiar problem is that of words which can change their position in the sentence, without this entailing a modification in the meaning of the sentence, much less in the meaning of the expression itself. For instance, unfortunately, [Bar Hillel 1964 : 88] is clearly a t/t adverb in (1) Unfortunately, John was asleep, but with this category assignment one cannot derive (2) John was, unfortunately, asleep or (3) John, unfortunately, was asleep. It would appear that unfortunately has to be listed three times with three different category indices, according to its position in the sentence. This would be a clear case of 'multiplying entities beyond necessity'. Moreover, assigning three different indices is also undesirable semantically because in (1) - (3), unfortunately is uniformly understood as a constant of type $\langle st \rangle t \rangle$: (sentence adverb).

1.3. Free relative clauses provide another instance. Consider a possible Montague analysis tree of (1) :

(1) Care au venit la timp au mers la concert.



(2) A surface categorization might give us :

care $\in P_T$ (t/IV) ; merge, veni $\in P_{IV}$; la timp, la
culcare $\in P_{IV/IV}$;

care au venit la timp $\in P_t$ (or P_T = proposition level.
terms - see Delacruz [1976 : 185]).

This analysis cannot be correct. On the surface care au venit can only be analysed as a subject clause, within which care is the subject. However, it incorrectly follows from this analysis that care au venit is a proposition level term, and that a merge takes a DSsubject clause, being in the same class with a se intimpla, a parea, a trebui. If we accept this, we must distinguish between subject clauses that always take singular predicates [= complement clauses] and subject clauses that take singular or plural predicates [= free relatives].

3. a. Se pare că Ion e vinovat.
- b. Cui i-e foame cere de mincare.
- c. Ce bani mai are sînt strînși în sipet.

But how is one to state the agreement rule ? Should we allow the predicate to agree with a direct object in the subject clause, as is the case in 3 c ?

An even more powerful argument against this analysis is that while că Ion e vinovat in (3 a) denotes a proposition and is a proposition level term, care au venit in (1) does not denote a proposition but an individual concept : "cel care au venit". This syntactic analysis crucially depended on the (inadequate) analysis of care as a P_{IV} , on the strength of its surface distribution.

1.4. The discussion in 1.1. - 1.3 leads to the following conclusions : 1) categorization in terms of all surface strings is

a task which becomes unnecessarily complex - if not impossible and it might lead to wrong results ; 2) therefore, categorization should take into account a subset of the admissible strings ; we thus separate a class of underlying or basic strings in terms of which we assign category indices for basic expressions. These strings are produced by the rules of functional application, rules which operate on categorially well-formed strings and which produce categorially well-formed strings ; 3) there will be another class of rules that need not act on categorially well-formed structures and need not produce a categorially correct result : e.g. Unfortunately, John died. → John, unfortunately, died. These are transformations; 4) Such a policy has the desirable result of reducing the number of categories to which a lexical item is assigned - an important problem for lexicon construction.

2. Further arguments in favour of transformations.

2.1. Gapping. Given that MG disposes of a well-defined and powerful semantic component, it appeared to be possible to eliminate from the grammar certain transformations like Gapping, Equi whose motivation was, at least in part, semantic. Thus (V) Gapping was set up in order to allow the semantic component to assign a reading to the gapped clause at DS level (i.e. before Gapping applied). Working within a variant of PTQ, Stump [1978] explores the possibility of a non-transformational analysis of verbal Gapping. We present the main features of his treatment.

2.1.1. Gapped clauses are generated on a compositional basis starting from the remark that constituents left after gapping are major phrasal categories⁴: T (t/IV), Adj (CN/CN), IV, Av (IV/IV), t, At (t/t = sentence adverb). The production of gapped clauses requires the introduction of a special structural operation to produce the gapped clauses. The rules are given below [Stump, 1978 : 474].

(4) a. $F_0(\langle A \alpha \rangle, \langle t \emptyset \rangle) = \langle t \langle A \alpha \rangle \text{ that } \langle t \emptyset \rangle \rangle$, where A is a major phrasal category.

b. $F_0(\langle A \alpha \rangle, \langle T \text{ he} \rangle) = \langle t \langle A \alpha \rangle \langle T \text{ him} \rangle \rangle$, where A is as above.

c. $F_0(\langle A \alpha \rangle, \langle B \beta \rangle) = \langle t \langle A \alpha \rangle \langle B \beta \rangle \rangle$, where A, B are major phrasal categories and $\langle B \beta \rangle$ isn't as above.

Structures resulting from (4) are conjoined with full sentences by a rule of sentence conjunction (5).

(5) $F_1 (\ulcorner_t \emptyset \urcorner, \ulcorner_t \psi \urcorner) = \ulcorner_t \ulcorner_t \emptyset \urcorner \text{ and } \ulcorner_t \psi \urcorner \urcorner$.

Rule (4) produces strings like :

(6) a. $\ulcorner_t \ulcorner_T \text{ Mary} \urcorner \ulcorner_{Av} \text{ quickly} \urcorner \urcorner$.

b. $\ulcorner_t \ulcorner_{At} \text{ daily} \urcorner \text{ that } \ulcorner_t \ulcorner_T \text{ John} \urcorner \ulcorner_{IV} \text{ talks} \urcorner \urcorner \urcorner$.

Conjoining 6 a and b with full sentences, one obtains compound sentences with gapped clauses.

(7) a. $\ulcorner_t \ulcorner_t \ulcorner_T \text{ John} \urcorner \ulcorner_{IV} \ulcorner_{IV} \text{ runs} \urcorner \ulcorner_{Av} \text{ slowly} \urcorner \urcorner \urcorner$
and $\ulcorner_t \ulcorner_t \ulcorner_T \text{ Mary} \urcorner \ulcorner_{Av} \text{ quickly} \urcorner \urcorner \urcorner$.

b. $\ulcorner_t \ulcorner_t \ulcorner_{At} \text{ Weekly} \urcorner \ulcorner_t \ulcorner_T \text{ Bill} \urcorner \ulcorner_{IV} \ulcorner_{IV/t} \text{ denies} \urcorner \urcorner$
that $\ulcorner_t \ulcorner_T \text{ Mary} \urcorner \ulcorner_{IV} \text{ walks} \urcorner \urcorner$ and $\ulcorner_t \ulcorner_{At} \text{ daily} \urcorner$ that
 $\ulcorner_t \ulcorner_T \text{ John} \urcorner \ulcorner_{IV} \text{ talks} \urcorner \urcorner \urcorner$.

Objections to the syntactic treatment.

1. This analysis of Gapping implies an unnecessary complication of the syntax by adding (4). If one tried to analyse more than just verbal Gapping further complex rules will be added. Still, it might be argued that we actually have a trade-off relation between Gapping as a deletion rule and (4) as a (complex) structure building rule. The deletion approach is, however, superior; one of the best arguments against any non-deletion approach is Hankamer's (1973) observation that, for example, in the gapped clause of a sentence such as (8), the occurrence of the preposition on (as opposed to some other) cannot be guaranteed without recourse to some ad-hoc device beyond mere strict subcategorization, if the gap in (8) is basic.

(8) Bill depends on Harry and Harry on Bill.

2. Rule (4) and (5) will generate a lot of ill-formed sentences. Thus (5) is free to conjoin any T strings, even two T strings produced by (4). (Sentences like (9) are eliminated as semantically uninterpretable).

(9) * Mary quickly and Bill a cat.

The deletion approach does not produce such sentences due to the structural description and constraints imposed on Gapping.

3. It is difficult to see how one could formulate the constraint on directionality for Gapping⁵⁾, if the rule is extended to more than verbal Gapping. In the absence of such a constraint how

can be generated (10), where the rule deletes constituents of both conjuncts ? (Actually, (10) combines Gapping and Right Node Raising).

(10) Mary studied Latin, $\left[\vee \right]$ and Bill, $\left[\vee \right]$ Greek in Paris.

2.1.2. The semantic interpretation of gapped clauses supplies an unbound variable for the missing part of the translation of the gapped clause corresponding to (4) ; there is the following translation rule [Stump, 1978 : 475].

(11) If $\left[A \right]$, $\left[B \right]$ translate as $\{ \langle \alpha \rangle, \langle \beta \rangle \}$ respectively, then $F_0(\left[A \right], \left[B \right])$ translates as $\{ \langle v_0, \langle s, g((t/A)B) \rangle \} \{ \langle \beta \rangle \langle \alpha \rangle \langle \alpha', \beta' \rangle \}$, where A, B are major phrasal categories.

(12) e.g. $\{ \langle v_0, \langle s, g((t/T)/Av) \rangle \} \{ \langle \text{'quickly'} \rangle \} \{ \langle \text{'m'} \rangle \} \}$,
 $\langle v_0, \{ \langle \text{'quickly'} \rangle \} \{ \langle \text{'m'} \rangle \} \} \{ \langle \text{'x}_n \rangle \} \}$

Remark. Stump's analysis is based on the translation schema proposed in Cooper [1975 : 175-188], who does not use a disambiguated syntactic language ; the syntax may generate semantically ambiguous expressions which translate as sets of IL rules.⁶⁾

Compound sentences generated by (5) translate their first (full) member in the standard way. If the second member is a gapped clause, then the translation of the resulting expression involves a procedure whereby the free variable introduced in (11) is bound by part of the translation of the full antecedent clause. The corresponding rule is :

(13) If $\left[\phi \right]$, $\left[\psi \right]$ translate as $\{ \langle \phi \rangle, \langle \psi \rangle \}$ respectively, then

(1) $F_1(\left[\phi \right], \left[\psi \right])$ translates as $\{ \langle \phi \wedge \psi \rangle, \langle \phi \rangle, \langle \psi \rangle \}$ if both $\left[\phi \right]$ and $\left[\psi \right]$ contain a finite main verb.

(11) if $\left[\psi \right]$ is of the form $\left[\left[A \right] \left[B \right] \right]$ (where A, B are major phrasal categories) and contains no finite main verb, then

$F_1(\left[\phi \right], \left[\psi \right])$ translates as $\{ \langle \phi \wedge v_0, \langle s, g((t/A)B) \rangle \} \{ \langle \psi \rangle \langle \phi \rangle, \langle \psi \rangle \}$ for each T, where $\left[\phi \right]$ has the internal structure

$\left[\left[A \right] \left[\delta \right] - X - \left[B \right] \left[\gamma \right] - Y \right]$ (where X contains the finite main verb of $\left[\phi \right]$, if such exists, or is otherwise null).

Clause 11 of (13) is very complex and we do not intend to illustrate it here for an example, see Stump, 1978 : 476-477. A very serious problem with this approach to Gapping is the power

of 13 ii : in translating F_1 ($\lfloor_t \phi \rfloor$, $\lfloor_t \psi \rfloor$ the rule must mention the independent IL translation of two different constituents of $\lfloor_t \phi \rfloor$, namely $\lfloor_A \phi \rfloor$ and $\lfloor_B \psi \rfloor$; though the operation category of F_1 specifies only $\lfloor_t \phi \rfloor$ and $\lfloor_t \psi \rfloor$. This type of rule no longer satisfies Montague's definition of (derived) syntactic rule \lfloor UG : 232 \rfloor . Remember that according to the theory of translation given in UG, the syntactic rule which translates F_1 ($\lfloor \lfloor_t \phi \rfloor$, $\lfloor_t \psi \rfloor$) should involve an operation which has the same number of places. (i.e. two places).

"(5) Whenever $\langle F_1, \langle \delta_1 \rangle \rangle \in S, \langle H_1, \langle g(\delta_1) \rangle \rangle \in S$, $g(\theta)$ is a derived syntactical rule in L ".

Stump concludes that "interpretative semantics isn't possible within the UG semantic framework. Whether this is to be taken as a sign of descriptive deficiency in the framework or more likely as evidence favouring a deletion analysis of Gapping is an empirical question, the final answer to which will bear significantly on the broader question of how widely needed transformations are for the description of English surface structure." \lfloor 1978 : 480 \rfloor .

2.1.3. In view of our syntactic objections (1)-(3) and of Stump's above-mentioned statement, we conclude that a transformational approach to Gapping is descriptively superior. No semantic translation problems will arise, as the translation operates on the full ungapped clauses.

3. The discussion in paragraphs 1,2 suggests that transformational rules are a necessary addition to PTQ. As matter of fact, PTQ already contains operations similar to transformations (e.g. S_{14} - S_{16} , or rules which combine structure building and transformations (e.g. S_3). The only constraint which has to be added is that all structure creating rule apply before transformational rules. We shall discuss the problem of the semantic translation of transformations in a subsequent paragraph. For the time being, the problem is to what extent rules which are formally transformations (as defined in Aspects or in LSIT) can be incorporated in PTQ.

3.1. Partee \lfloor 1975 : 65 \rfloor assumes that transformations can be added to PTQ worded as follows :

(14) If $\phi_t \in P_t$ and ϕ is of the form '.....', then '.....' $\in P_t$, where the first '.....' would be filled by the structural description and the second by the structural change.

The implementation of transformations is not however a trivial problem. Mc. Cawley (ms) found that PTQ syntax is inadequate because it was a string oriented grammar, it is a well known fact that transformations do not operate on strings, but on certain proper analyses of strings in terms of syntactic categories ; they map phrase markers onto phrase markers. To solve the problem of immediate domination and that of representing proper analyses of strings several researchers [Dowty (1978). Partee [1975., 1976]] suggested the introduction of labelled bracketing. It would be possible then to represent transformations in the formulation suggested by Partee above, e.g. [1976 : 66].

(15) Passive Rule. If $\phi \in P_+$ and ϕ has the form :

a) strict form : $t \left[\begin{array}{c} T \\ \left[\begin{array}{c} \alpha \\ IV \end{array} \right] \left[\begin{array}{c} TV \\ \left[\begin{array}{c} \beta \\ T \end{array} \right] \left[\begin{array}{c} \text{him}_1 \\ \gamma \end{array} \right] \end{array} \right] \end{array} \right]$

b) loose forme : ${}_t[\tau][\alpha]_{IV}[\tau_V][\beta]_T[\delta]_{\gamma}]]$

then $F_{17}[\emptyset] \in P_t$, where $F_{17}[\emptyset]$ is

$$\left[\left[\begin{matrix} (a) & \text{he}_1 \\ (b) & \delta \end{matrix} \right] \right]_{IV} \left[\text{is EN}_{TV} [\beta] \gamma \right] \left[\text{by}_T [\alpha] \right] \right]$$

Example : John sees him₂ \Rightarrow he₂ is seen by John.

Translation : identity mapping .

As a matter of fact, however, although PTQ rules contain information about the categories they operate on, categorial information is not explicitly represented in the Montague analysis trees but can only be obtained indirectly through an examination of the operation category.

Another important point is that often, the proper analysis of a string is arrived at only by examining several lines of an analysis tree. Thus, adopting the convention that we represent the operation index for each operation in the tree, at least two lines in the derivation should be examined to retrieve the structural description for passive. The first line can only indicate the

(16) John_T saw him_n IV 4 bracketing implicit in S₄
 John [see him]_{IV} 5 t_T [α]_{IV} [β]_{IV}.
 see_{TV} he_n T

Notice also that it is possible, due to the interrelation of functional and quantificational rules, that for a certain string

the proper analysis cannot be captured at all. Consider a different analysis of the same string.

- (17) 1. John saw him_n 10,2 The description of passive is met in lines 3,4 where he₂ has not been quantified into yet. To be able to apply passive to 1, one should add some condition which allows
2. John_T he₂ saw him_t 4
3. he₂_T see him_n IV
4. see_{TV} he_T

the interpretation of line 17, (1) on the model of 17, 3-4 of course one can apply Passive in line (3), but there is no reason why one should be forced to apply Passive in 17.3 rather than in 17.1

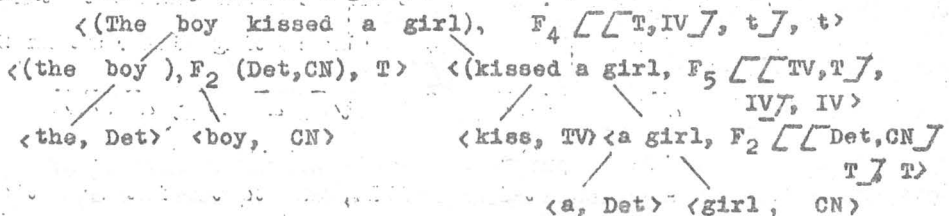
Schnelle [1973: 392] actually shows that to provide category information one needs category trees which are different formal objects from Montague's analysis trees.

Remark. Category trees have been used by Lewis [1972] as a basis for semantic description.

The implementation of transformations requires the addition of category trees which would categorially interpret the analysis trees. In conjunction with Montague's analysis trees category trees would provide structurally complete analyses for strings. Informally, a structurally complete analysis is a family of triples; the triple assigned to any index is as follows: the first member is the phrase dominated by the node to which the index has been assigned, the second member is the syntactic operation which produced the string, the third member is the category index of the resulting string.

(18) is an instance of a structurally complete analysis. A structurally complete analysis can be given under the form of a tree representation on which a bottom to top, left to right relation of order of the nodes has been defined.

(18) The boy kissed a girl.



We have shown that a) in view of solving various syntactic

and semantic problems one should better set up a two - level syntax with transformations relating deep and surface structures ; b) the introduction of transformations imposes the replacement or supplementation of Montague trees by category trees obtaining structurally complete analyses. Considering a) and b) we prefer to replace PTQ syntax by a phrase structure syntax with transformations. It is easy to see that a Chomskyan phrase marker is a tree representation which in fact offers the same information as a structurally complete analyses, implicitly containing a category tree.

(19) The boy kissed a girl.

$\langle \langle \text{the boy kissed a girl} \rangle, F_0 \langle \langle \text{NP, VP} \rangle, S \rangle, S \rangle$

$\langle \langle \text{the boy} \rangle, F_0 \langle \text{Det, NP} \rangle, \text{NP} \rangle \quad \langle \langle \text{kissed a girl} \rangle, F_0 \langle \langle \text{V, NP} \rangle, \text{VP} \rangle, \text{VP} \rangle$

$\langle \text{the, Det} \rangle \quad \langle \text{boy, N} \rangle \quad \langle \text{kissed, V} \rangle \quad \langle \langle \text{a girl} \rangle, F_0 \langle \text{Det, N} \rangle, \text{NP, NP} \rangle$

$\langle \text{a, Det} \rangle \quad \langle \text{girl, N} \rangle$

Nodes in phrase markers are labelled by categories. The functional operation $F_0 \langle \alpha, \beta \rangle$ which appears in (19) need not be represented (specified) since at the DS level of structure ; the only operation allowed is concatenation, and this restriction is an axiomatic constraint built in Chomsky's definition of a linguistic level. Phrase markers thus provide analysis trees for strings, as well as an interpretation of the analysis trees in terms of syntactic categories.

4.0. In the analysis of RCs, in English and Romanian we start from one of the transformational models presented in Cooper-Parsons [1976], namely Cooper - Syntax [= CS], The syntax has two parts : a phrase structure grammar, producing deep structure trees, which are translated into IL, and a set of transformations ultimately generating surface structures. CS and PTQ syntax are equivalent in the sense that, CS produces all of the sentences of PTQ and both grammars assign the same meaning to the expressions they generate. Cooper - Parsons define a metamorphosis 'procedure', m , (a function), which converts a PTQ analysis tree into a phrase marker, called C(oooper) - tree. The following important results are proved.

Theorem 1. If t is an M(= Montague) - tree, then $m(t)$ is a C tree.

Theorem 2. The function m is bijective (one-to-one) from the set of M trees onto the set of C-trees.

The rules of CS are given in chart (20) below.

4.1. The interest of CS lies in the fact that its deep structure can be translated into IL. The translation of CS into IL requires a prior analysis of (the DS level of) CS in terms of Montague's notion of disambiguated language (explained on p. 9 above), because translatability as defined in UG is a particular relation holding between disambiguated languages. At first sight there does not seem to be a direct relation between the syntactic level of DS - a phrase structure grammar and the concept of disambiguated language (syntactic level structure) defined in UG, particularly because there is no notion in CS corresponding to the notion of syntactic operation (this notion was explained on p. 6 above). It has been shown that phrase - structure rules can be re-interpreted as syntactic operations: Cooper - Parsons propose to do this by redefining PSRs as adjunction operations on sub-trees: "We shall consider phrase structure rules to be of the form $f(\langle A \rangle, \langle B \rangle) = \langle C \rangle$, where $\langle A \rangle$, $\langle B \rangle$, $\langle C \rangle$ are sub-trees rooted by the nodes A, B, C and where $\langle C \rangle$ is obtained from $\langle A \rangle$ and $\langle B \rangle$ by f, by sister adjoining $\langle A \rangle$ and $\langle B \rangle$ under a node C so that $\langle A \rangle$ is to the left of $\langle B \rangle$. Terminal nodes are considered specific types of sub-trees that are rooted by themselves". [1976: 337]. Schnelle [1976: 396] offers an essentially similar reinterpretation of PSRs as (non-associative) concatenation operations. Each CF (= context free) - rule with β category occurrences to the right of \rightarrow (e.g. $X \rightarrow Y_1 \dots Y_n$) is a β -place (non-associative) concatenation operation $\langle F_\gamma \langle Y_1 \dots Y_n, X \rangle \rangle$ (e.g. $\langle F_0 \langle NP, VP, S \rangle \rangle$).

With this re-adjustment, it is apparent that Cooper DS syntax can be reinterpreted as a disambiguated language. It will be the system $\langle A', F_\gamma, X'_\delta, S', \sigma'_\delta \mid \gamma \in \Gamma, \delta \in \Delta \rangle$, meeting requirements (1) - (7) given on page 9, of which the most important is that $\langle A', F_\gamma \rangle$ is an algebra. The symbols are interpreted as follows: 1) A' is the set of terminated trees (i.e. "trees whose leaves may root only themselves according to the grammar", Cooper, 1975); 2) B' is the set of non-terminal nodes or category indices; 3) X'_δ is a category of lexical items (trees rooted only by themselves) for all $\delta' \in \Delta'$. All lexical items that are immediately and exhaustively dominated by the node δ' in any tree generated by the grammar are members of the set X'_δ . The set of all lexical items is thus $\bigcup_{\delta' \in \Delta'} X'_\delta$.

- 4) F'_{γ} is the functional operation f mentioned in the re-definition of PSRs for all $\gamma \in \bar{\gamma}$;
- 5) $\bar{\gamma}$ is the set of indices on syntactic operations ;
- 6) S' is the set of (redefined) phrase structure rules ;
- 7) ϕ_0 is the node S .

Like the syntactic level structure defined for PTQ, the DS syntax provides a disambiguating metalanguage for the well-formed surface structures of English ($= L$). To characterize the set of syntactically and semantically ambiguous expressions of L , we might define a binary relation R ($=$ the relation of syntactic - level object assignment), with domain included in A' (the set of DS trees) and range in L which could show that there may be more than one DS analysis for the same surface expression.

This re-interpretation of the DS level is of interest from several points of view :

a) Re-interpreting the DS-level, i.e. or phrase structure grammar in terms of Montague's concept of disambiguated language or syntactic level structure would constitute a necessary step in any research devoted to an informal axiomatization of a phrase structure grammar, given that the notion of syntactic level structure is directly given in set theory, this delimiting at the same time a class of models for the respective grammar, read as a theory of the language. This could be another way of providing an interpretation and analysis of GT as scientific theory. [see note 1]

b) This analysis of the DS level facilitates the comparison of PTQ syntax and Chomskyan DS syntax, while both are viewed as realisations of the same universal grammar. Certain important differences can be easily stated : 1) Both theories make use of a set of category indices. But in Chomskyan theory these categories are taken as primitives, defined only in terms of their syntactic properties specified by the grammar ; in PTQ (and also in CS) categories are defined in terms of the two primitives e , t , which play a most important semantic role ; the grammar is semantically oriented and provides a formal interpretation of the notions of 'entity' and 'truth'... 2) Unlike PTQ syntax, DS syntax (CS or Aspects) allows only one type of operation f concatenation (this is an axiomatic constraint introduced by Chomsky in his definition of syntactic level (ISLT)). 3) While PTQ disambiguates by analysis trees, the DS syntax disambiguates by tree representations that

provide structurally complete analyses. We have shown above that this is an essential condition for the construction of the transformational syntactic level.

c) Finally, we can define the translation relation between the DS of CS and IL, which are both disambiguated languages [see the presentation of IL on p.19 above]. The translation relation from CS into IL is a system $\langle g, H_\gamma, j \rangle$ which, meets the following conditions :

1) g is a function from Δ' into \mathcal{T} , i.e. from the set of non-terminal nodes or category indices of the DS syntax into the set of logical types \mathcal{T} of IL. There is only one IL type that corresponds to any syntactic category. The values of g are given in the chart on p. 5.

2) j is a function from the set of lexical items $(\bigcup X_{\delta'}, \delta' \in \Delta')$ into the set of expressions of IL.

In most cases lexical items translated as (non-logical) constants of the appropriate type : e.g. $j(\text{run}) = \text{run}'$;

For items that contribute to logical form the translation may be more complex and it is given by individual translation rules $j(\text{every}) = \bar{P} \bar{Q} \wedge x (P\{x\} \rightarrow Q\{x\})$.

3) For every β -place operation F_γ in the syntax there is a corresponding β -place operation H_γ in the logic. Furthermore, for each phrase structure rule of the DS [e.g. $\langle F_\gamma \langle Y_1 \dots Y_\beta, X \rangle \rangle$] there is a corresponding derived syntactic rule in IL [e.g. $\langle H_\gamma \langle g(Y_1) \dots g(Y_\beta), g(X) \rangle \rangle$]

4) $g(S) = t$. This clause says that sentences of English must correspond to sentences in the logic.

Translation rules are similar to projection rules [Katz and Fodor, 1963]. They start by processing the terminal nodes of the DS and then assign readings to each higher node until the topmost node of the tree is reached.

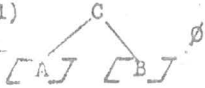

We present the PSRs with their translation. [Cooper - Parsons op.cit. 334 - 335].


(20)

No	P S R	T	Translation rules
1 a	$S \rightarrow S_1 \text{ and } S_2'$	1 a	$\begin{array}{c} S \\ \swarrow \quad \downarrow \quad \searrow \\ S_1 \quad \text{and} \quad S_2 \end{array} \quad S_1' \wedge S_2'$
b	$S \rightarrow S_1 \text{ or } S_2'$	b	$\begin{array}{c} S \\ \swarrow \quad \downarrow \quad \searrow \\ S_1 \quad \text{or} \quad S_2 \end{array} \quad S_1' \vee S_2'$
c	$S \rightarrow \text{NP vbl } S$	c	$\begin{array}{c} S \\ \swarrow \quad \downarrow \quad \searrow \\ \text{NP} \quad \text{vbl} \quad S \end{array} \quad \text{NP}' [\text{vbl}' [\text{S}']]$
d	$S \rightarrow \text{Adv}_s S$	d	$\begin{array}{c} S \\ \swarrow \quad \searrow \\ \text{Adv}_s \quad S \end{array} \quad \text{Adv}' (^{\circ} \text{S}')$
e	$S \rightarrow \text{Neg NP Aux VP}$	e	$\begin{array}{c} S \\ \swarrow \quad \downarrow \quad \searrow \quad \swarrow \\ \text{Neg} \quad \text{NP} \quad \text{Aux} \quad \text{NP} \end{array} \quad \text{Neg}' [\text{Aux}' [\text{NP}' (^{\circ} \text{VP})]]$
f	$S \rightarrow \text{NP Aux VP}$	f	$\begin{array}{c} S \\ \swarrow \quad \downarrow \quad \searrow \\ \text{NP} \quad \text{Aux} \quad \text{VP} \end{array} \quad \text{Aux}' [\text{NP}' (^{\circ} \text{VP})]$
2 a	$\text{VP}' \rightarrow \text{VP}' \text{ and } \text{VP}'$	2 a	$\begin{array}{c} \text{VP}' \\ \swarrow \quad \downarrow \quad \searrow \\ \text{VP}' \quad \text{and} \quad \text{VP}' \end{array} \quad \hat{x} [\text{VP}'_1(x) \wedge \text{VP}'_2(x)]$
b	$\text{VP}' \rightarrow \text{VP}' \text{ or } \text{VP}'$	b	$\begin{array}{c} \text{VP}' \\ \swarrow \quad \downarrow \quad \searrow \\ \text{VP}' \quad \text{or} \quad \text{VP}' \end{array} \quad \hat{x} [\text{VP}'_1(x) \vee \text{VP}'_2(x)]$
c	$\text{VP}' \rightarrow \text{NP vbl VP}'$	c	$\begin{array}{c} \text{VP}' \\ \swarrow \quad \downarrow \quad \searrow \\ \text{NP} \quad \text{vbl} \quad \text{VP}' \end{array} \quad \hat{y} [\text{NP}' (\text{vbl}' [\text{VP}'(y)])]$
d	$\text{VP}' \rightarrow \text{VP}' \text{ Adv}_{\text{VP}}$	d	$\begin{array}{c} \text{VP}' \\ \swarrow \quad \searrow \\ \text{VP}' \quad \text{Adv}_{\text{VP}} \end{array} \quad \text{Adv}'_{\text{VP}} (^{\circ} \text{VP}')$
e	$\text{VP}' \rightarrow \text{VP}' \text{ Prep Ph}$	e	$\begin{array}{c} \text{VP}' \\ \swarrow \quad \searrow \\ \text{VP}' \quad \text{Prep Ph} \end{array} \quad \text{Prep Ph}' (^{\circ} \text{VP}')$
f	$\text{VP}' \rightarrow \text{V}_1$	f	$\begin{array}{c} \text{VP}' \\ \downarrow \\ \text{V}_1 \end{array} \quad \text{V}_1'$
g	$\text{VP}' \rightarrow \text{V}_t \text{ NP}$	g	$\begin{array}{c} \text{VP}' \\ \swarrow \quad \searrow \\ \text{V}_t \quad \text{NP} \end{array} \quad \text{V}_t' (^{\circ} \text{NP}')$

h	$VP \rightarrow V_{VP} VP$	h	$\begin{array}{c} VP \\ \swarrow \quad \searrow \\ V_{VP} \quad VP \end{array}$	$V'(\wedge VP')$
1	$VP \rightarrow V_S S$	1	$\begin{array}{c} VP \\ \swarrow \quad \searrow \\ V_S \quad S \end{array}$	$V'(\wedge S')$
3 a	$Aux \rightarrow Pres$	3 a	$\begin{array}{c} Aux \\ \\ Pres \end{array}$	\emptyset [the null translation]
b	$Aux \rightarrow Pres M$	b	$\begin{array}{c} Aux \\ \swarrow \quad \searrow \\ Pres \quad Modal \end{array}$	Modal'
c	$Aux \rightarrow Pres Perf.$	c	$\begin{array}{c} Aux \\ \swarrow \quad \searrow \\ Pres \quad Perf. \end{array}$	$V' Perf'$
4 a	$Adv_{VP} \rightarrow Prep NP$	4	$\begin{array}{c} Prep NP \\ \swarrow \quad \searrow \\ Prep \quad NP \end{array}$	$Prep'(\wedge NP')$
5 a	$NP \rightarrow NP_1 \text{ and } NP_2$	5 a	$\begin{array}{c} NP \\ \swarrow \quad \quad \searrow \\ NP_1 \quad \text{and} \quad NP_2 \end{array}$	
a'	$NP \rightarrow NP_1 \text{ or } NP_2$	a'	$\begin{array}{c} NP \\ \swarrow \quad \quad \searrow \\ NP_1 \quad \text{or} \quad NP_2 \end{array}$	$P[NP'_1(P) \vee NP'_2(P)]$
b	$NP \rightarrow Det Nom$	b	$\begin{array}{c} NP \\ \swarrow \quad \searrow \\ Det \quad Nom \end{array}$	$Dat'(\wedge Nom')$
c	$N \text{ prop}$	c		$J (N \text{ prop})$
6 a	$Nom \rightarrow NP \text{ vbl } Nom$	6 a	$\begin{array}{c} Nom \\ \swarrow \quad \quad \searrow \\ NP \quad \text{vbl} \quad Nom \end{array}$	$\hat{Y}[NP'(\hat{vbl}'/Nom(y))]$
b	$Nom \rightarrow Nom \text{ vbl } such \text{ that } S$	b	$\begin{array}{c} Nom \\ \swarrow \quad \quad \searrow \\ Nom \quad \text{vbl} \quad \text{such that } S \end{array}$	$\hat{vbl}'/Nom'(vbl') S]$
c	$Nom \rightarrow Nom$	c	$\begin{array}{c} Nom \\ \\ Nom \end{array}$	Nom'

Remark. As the chart shows, IL expressions are associated with the reinterpretation of PSRs as operations on trees for reasons that should be clear. A rule of the form (21) is to be read as

as follows : If $\lceil A \rceil$, $\lceil B \rceil$ are trees rooted by the nodes A, B, then
 (21)  the tree $\lceil C \rceil$ translates as \emptyset . A tree whose
 topmost node exhaustively dominates the node
 immediately below it  has as

its translation, the result of applying the identity function to
 the translation of the tree without the topmost node  translates as $\lceil B \rceil$.

5. Our choice of CS over PTQ syntax is motivated by a desire to construct a (more) independently motivated syntax still compatible with IL. The syntax should have independent motivation in the sense that the formulation of rules, choice of primitives etc. should primarily be justified on syntactic grounds, or, at least, on syntactic grounds as well. In the following chapters we will use CS, which will be :
 a) extended, by adding new categories and rules ; b) revised in the direction just mentioned above; the revision refers to the introduction of subcategorization and to a more extensive use of syntactic features.

6. Subcategorization problems. 6.1. A discussion of subcategorization will also be interesting in the light of the relation between DS syntax and IL, which is in fact a level of semantic representation. Of late researchers have tended to emphasize the different nature of strict subcategorization and selectional rules grouped together by Chomsky under the name of subcategorization rules (1965). Bruck (1978) offers a recent presentation of this problem :

Strict subcategorization features must belong to the syntax no matter how narrowly the domain of syntax is defined. Unlike selectional features : a) their range is (almost) entirely determined by the PS rules themselves ; - these features are really names of the categories used in PSRs plus a dash for the flanked material $\lceil \text{e.g.} + \text{NP} \rceil$; b) hence their number is fairly restricted ; c) the possible features involved in strict subcategorization are only partly predictable from the inherent meaning of an item. Compare : the hours slipped/elapsed by them.

Strict subcategorization exemplifies in a GT the Saussurean concept of syntagmatic relations, relations in praesentia.

While strict subcategorization enumerates the admissible sequences of categories that comprise the strings of a language, selectional restrictions deal with the proper choice of members belonging to the categories mentioned in these sequences. Bruck concludes that

selectional restrictions illustrate paradigmatic choice in a given syntagmatic position. Selectional features are inherent semantic features predictable from the meaning of the item, and not limited in number.

In spite of their purely syntactic nature (in fact because of it), it is strict subcategorization features that play the more important role in defining the syntax - semantic relation in CS. In fact the chart in (20) shows that for major lexical categories (N, V, Adj, Adv), IL types correlate with subcategories (V_t , V_i , etc. as opposed to \bar{V}).

This is an expected consequence of Montague semantics, which rests on a conformity between syntactic categories and IL types on the one hand, and ontological types on the other. The set of syntactic (sub)categories imposes a syntactic classification of the proper expressions into expressions of category A , type $g(A)=a$, for each $A \in \text{Cat}$. Likewise, the set of possible denotations is stratified into a hierarchy of possible denotations of type a for each $a \in \text{Type}$. Thus, whenever $a \in \text{Type}$ and α is a constant (= lexical item) $F(\alpha) \in S_{a, A, I, J}$ [where $S_{a, A, I, J}$ is the set of senses of type a understood as $D \langle s, a \rangle, A, I, J$]; whenever $\langle a, b \rangle \in \text{Type}$ and α is constant of type $\langle a, b \rangle$, $F(\alpha) \in D \langle a, b \rangle, A, I, J$ which is defined as $D_{a, A, I, J}^{D_{a, A, I, J}}$ (a function on denotations, defined on $D_{a, A, I, J}$ with values in $D_{a, A, I, J}$). The assignment of a syntactic subcategorial feature to an expression α determines a principle of syntactic construction for any expression β of which α is a constituent, and via the relation of ontological conformity, it will also determine a principle of construction for the denotation of any expression β of which α is a subpart. Strict subcategorization is important because lexical items are translated only as part of the configuration in which they appear and are not therefore assigned any meaning of their own.

The class of meaningful expression $\llbracket \text{ME} \rrbracket$ defined by IL is thus co-extensive with the class of categorially correct utterances. Such a delimitation of the class of meaningful expressions is related to the intuitive differences in the interpretability of (1) versus (2) :

- | | | |
|--|---|--|
| <p>(1) a. <u>Caesar is triangular.</u>
 b. <u>Colourless green ideas</u>
 <u>sleep furiously.</u></p> | } | <p>categorially well-formed strings,
 deviant at the level of "selectional restrictions"</p> |
| <p>(2) ^{xe}<u>Caesar is and.</u>
 ^{xe}<u>Green sleep colourless</u>
 <u>furiously ideas.</u></p> | } | <p>categorially ill-formed strings</p> |

One might ask in what way one may intuitively speak about meaningfulness, in connection with sentences like (1). Wilks [1972:38] makes an interesting distinction between two senses of "meaningfulness"; (1) One is characterizable in terms of giving sense to an utterance by embedding it in some story whose meaning is clear [=non-ambiguous] (2)... the other is characterizable in terms of having one and only one interpretation and corresponds to sets of utterances that can be surveyed and decided (i.e. as to meaningfulness) only with respect to particular sets of dictionary rules [emphasis mine A.C.].

Categorially correct strings are meaningful at least in the first sense, i.e. interpretability by embedding in a meaningful text. Jakobson is known to have employed this procedure to prove that (1 b) is 'meaningful'. Categorical correctness sets a lower bound for meaningfulness. Of course most of the categorially correct sentences are meaningful in both senses.

6.2. While different strict subcategorization features always correspond to different semantic types, there are also some inherent semantic features which may influence (category and) type assignment. This is the case of features which express set-theoretic properties which can be correlated with denotation functions whose definitions in terms of e, t are different.

Thus while run is an intransitive verb of type $\langle \langle s, e \rangle, t \rangle$ gather, collide, be similar are analysed as intransitive verbs of type $\langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, t \rangle$ (i.e. functions from sets [properties] of individual concepts into truth values - see Hausser [1974 : 236]).

6.3. The introduction of selectional restrictions in Montague semantics would lead to a stronger notion of 'meaningful expression'.

For a given expression of category A/B, type $\langle a, b \rangle$, a selectional restriction will determine the subset of expressions of category B, type b, with which the first expression can combine. From

the point of view of the denotation relation, for a given predicate $\alpha_{\langle a, b \rangle}$ we will determine the class of objects of type b , for which one can significantly assert $\alpha'(^{\wedge}\beta')$ or $\sim\alpha'(^{\wedge}\beta')$ (i.e. $\alpha'(^{\wedge}\beta')$ and, $\sim\alpha'(^{\wedge}\beta')$ have a truth value). Let us call the predicate α or $\sim\alpha$ the absolute predicate $|\alpha|$. A selectional feature characterizes an 'ontological' (or 'sortal') type in the following sense defined by Sommers [1963 : 159]: "I shall call a class defined by an absolute predicate an ontological class... The members of an ontological class take one feature in common". Sommers further remarks: "If we now have an ordinary language and absolutize all of its predicates so that instead of being able to say that a thing is $\alpha_{\langle a, b \rangle}$ we should say that it is $|\alpha_{\langle a, b \rangle}|$, (e.g. male or male etc...) we could give only ontological information". The ontological language is embedded in every natural language in the inherent standard interpretations of the lexical items of the language.

One might wonder if there is any relation between the formal ontological categories defined before and the sortal categories. It might be said that the sortal categories result from the specific structure, properties of a particular model, (hence domain of reference) or possible world, which is the real world. The sortal categories thus represent an interpretation or application of the formal categories to the empirically given domain of the real world. Sentences which are deviant at the level of selectional restrictions typically describe worlds different from the real one imaginary, poetic, dream worlds etc. A change in the domain of reference is always implicit.

At the same time correctness at the level of selectional restrictions is a necessary condition for a sentence to be 'meaningful' in the second sense described by Wilks, which implies well-formedness with respect to certain dictionary rules (which include knowledge of the world, stereotypical features etc.).

Given the relevance of the Chomskyan typology of rules in defining and strengthening the notion of 'meaningful sentence', we understand Wilks' contention that "It is proper to discuss Chomsky's work at any stage of its exposition as being one of the most systematic explorations into the jungle of determining meaningfulness". [1972 : 71]

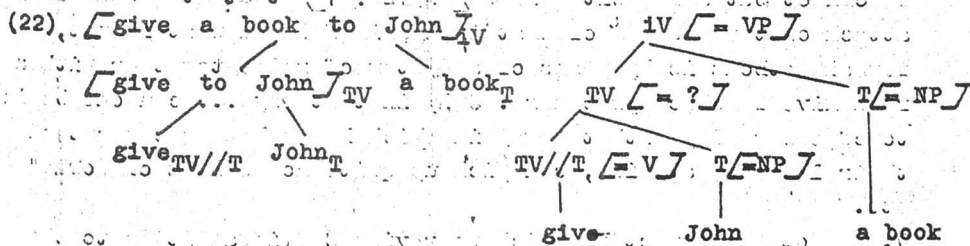
6.4. We have already shown that the types of IL correspond to subcategories of Chomsky's lexical categories, because categories like V, Adv, N cannot correspond to any single IL type ; accordingly, CS never uses the symbol V, but only V_1 , V_{VP} etc. This, however, is a serious disadvantage, because there are important morphological and syntactic regularities which characterize all the members of a given lexical category and which should be stated only once in the grammar in terms of V, Adv, etc, not in terms of V_1 , V_t , V_{VP} etc. To achieve this end, we modify Clause 1 of the translation relation (page 68 above) and let the function g (which maps categories into types) be defined on strict subcategorization features instead of lexical categories :

e.g. $g(+ Adv, + -S) = \langle \langle s, t \rangle, t \rangle$ replaces $g(Adv_S) = \langle \langle s, t \rangle, t \rangle$.

$g(+ V, + -\#) = \langle \langle s, e \rangle, t \rangle$ replaces $g(V_1) = \langle \langle s, e \rangle, t \rangle$.

6.5. It is possible now to introduce many place verbs in CS (e.g. three place verbs like give, persuade etc.) Semantically, such verbs correspond to multi-place functions. Given the structure of IL syntax, and in order to let the VP translation rules have the same general form, a multiplace function will be interpreted semantically as a one-place function, whose value is another function, this function may itself be a one-place function giving as value another function, a.s.o. until all the arguments are accounted for : $F(a, b, c) = \llbracket (F(a)(b))(c) \rrbracket$.⁹ Researchers in MG have used the same procedure for the syntactic analysis of English.

A verb like give was analysed as a TV//T expression (i.e. a verb which takes a term and yields a Transitive Verb Phrase, which is itself composed of a verb and one NP ; see Bennett [1976], Dowty [1978] etc.

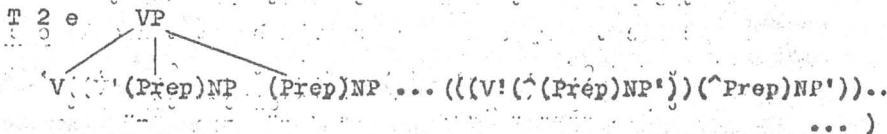


A phrase structure syntax consistently built on this model is unjustified ; there is no evidence for segmentations like $\llbracket \text{give John} \rrbracket_{IV} \llbracket \text{a book} \rrbracket_T \llbracket \text{inform of the truth} \rrbracket_{TV} \llbracket \text{John} \rrbracket_T$ etc.

i.e. there is no syntactic motivation for a TV constituent etc.

Because we have let IL types be defined on subcategorization features we can replace PSRs 2 e-i by a more general rule schema to which we associate a translation schema.

(23) $VP \rightarrow V (Prep)NP (Prep)NP \dots$



For instance, for verbs like inform smb of smth, persuade smb of, the grammar contains the following translation rule:

(24)

6.6. So far, little if anything has been done to accomodate selectional restrictions in Montague semantics and the present paper has nothing to offer in this direction. Cooper [1975] suggests the possibility of treating sortally incorrect sentences as being truth - valueless, by introducing partial functions in the semantics.

In fact, if lexical items are translated as constants of IL, sortal compatibilities (i.e. the information contained in selectional, inherent features) would be implicitly defined in the system of meaning postulates of the grammar. The denotation functions associated with IL constants will be partial functions [functions with truth - value gaps e.g. tables (fly) will be undefined]. This however can only be the beginning of a solution. We cannot but agree with Wilks [1972 : 7] that "the only useful attack on the problem of what is meaningful and what is not, by formal methods is by means of a system of rules together with a reflexive feedback procedure. Only in that way ... can one begin to cope formally with the way in which human beings can extend their language at will, can pick up quite new senses of words" etc.

7. The other respect in which we revise CS (in addition to the implementation of strict subcategorization) is the introduction of a fairly limited number of syntactic features among the primitives of the syntactic level. This appears to be necessary!

a) in order to achieve descriptive adequacy at the level of the syntactic component (e.g. the application of certain transformations may depend on certain features etc.), b) in order to properly relate the syntactic and the phonological component.

7.1. One should first remember the fact that not all of the items can be inserted at the level of the DS. To begin with, consider the problem of grammatical formatives as opposed to lexical categories. Only members of lexical categories obligatorily have lexical representations [= phonological representations provided by the lexicon]. "Grammatical morphemes may or may not have any such representations. If they do not, then they will be spelled out in the course of the phonological derivation of a sentence. Grammatical morphemes are, or, at least, may be purely abstract syntactic markers without any underlying phonetic content" [Aronoff 1978 : 18].

Furthermore even when items have lexical representations, it may be that these representations can be made part of the phrase marker only at the end of the transformational process. This is often the case with members of closed classes : determiners, pronouns etc. This happens because certain syntactic features may be inserted or deleted as a result of transformations, which spell out the features of the complex symbol. Thus Stockwell [1973] mentions a second "lexical look-up" which specifies only phonological information and which only involves items that had no phonological form in the first lexical look-up, or which were inserted transformationally. (e.g. by of the Passive). One might say that the second lexical look-up is already part of the phonological component, if the position of Aronoff [1978 : 21] is accepted, that there is no level of phonological representation, distinct from lexical representation and that just as transformations map from DS to SS, so does phonology map from surface structure to a phonetic representation. Just as there is no single transformational representation, so there is no single purely phonological representation in a derivation.

7.2. The syntactic level only makes use of syntactic features, (i.e. features that have some formal counterpart) of the following types : a) features that have to do with the representation of paradigmatic categories [e.g. [+ Acc], [- pl] etc.]; b) subcategorial features and other features which must be postulated to explain certain distributional properties of items ; c) rule features which

show whether a given lexically governed rule must, may or cannot apply [e.g. \vdash Raising].

7.3. Some of these syntactically motivated features are also relevant semantically. They contribute to "logical form". As already shown, some are in the domain of the type assignment functions. Thus $N [+ \text{Count}]$ and $N [- \text{Count}]$ will probably represent different types. Other features are associated with specific IL translations: e.g. $[+ \text{wh}] \rightarrow \bar{Q} \bar{P} \bar{x} [Q\{x\} \wedge \wedge P\{x\}]$; likewise, in a language that has natural gender, like English, the gender feature may be viewed as a conventional implicature of the noun, specified in the grammar by meaning postulate: e.g. $N [+ \text{neuter}]$ translates as N' and $\wedge x [N'(x) \rightarrow \sim \text{Human}'(x)]$. It appears that the function j which translates lexical items is in fact defined on items and features. Most of the features used in the syntax are purely formal so that, for instance $N [+ \alpha \text{ case}, \alpha \text{ Rule}]$ translates as simply N' .

Let us note, in passing, that the existence of features which are both syntactic and semantic, points out to the impossibility of completely separating syntax from semantics otherwise than in theory.

8. In the present fragment of grammar we will use only transformations which are meaning preserving, more specifically transformations which change neither the extension nor the implicatures of the input string. Each transformation is an operation on phrase markers defined as follows:

If S is a tree rooted by S_1 which meets $\langle \dots \rangle$, then $\text{Tr}_n(S)$ is the tree S_1 which meets $\langle \dots \rangle$, where 'n' stands for the name of the transformation and $\langle \dots \rangle$ and $\langle \dots \rangle$ are to be filled by the structural description and structural change of the transformation.

In a grammar in which all transformations are meaning preserving, it is enough to define translation rules on the deep structure syntax - this is the position adopted in Cooper Syntax and in this fragment. Alternatively, we might add for each transformation a translation rule of the following form:

If S is a tree rooted by S which meets $\langle \dots \rangle$ and S translated as S' , then $\text{Tr}_n(S)$ translates as S'' where $S'' = f(S')$ where f is the identity mapping function.

Such rules are superfluous if the grammar uses only meaning preserving transformations. The more recent semantic analysis of certain phenomena which have always been treated as transformations suggests that there may be transformations which change the conventional implicatures of a string, leaving the extension unchanged [see the analysis of cleft sentences in Halvorsen [1972]], or even transformations which change the extensions of strings. [for instance the analysis of Agent Deletion in Partee [1976]].

If such transformations are allowed in the grammar, then translation rules will have to be defined on transformational rules as well, subject to the following condition: the semantic operation corresponding to a syntactic transformations will be defined only on the translation of the input phrase marker and the translations of the expressions figuring in the structural description and structural change.

Notes

- 1) Moreover, it is to be noticed that the two authors share the view that linguistic theory is a theory regarding the structure of linguistic levels, where each level is mathematically defined as an algebra [UG : 225, LSIT : ch. III].
- 2) Chomskyan grammar is presented as an uninterpreted quasi-deductive system, whose only axiom is S, and whose rules of derivation (inference) coincide with the rules of the grammar. It has been shown (Jün-Tin Wang, 1973, Lieb, 1974, Minea, 1979), that for any generative rule system it is possible to construct a corresponding first-order theory; the rules of the grammar are then introduced as specific non-logical axioms in an axiomatic theory formulated completely within first-order predicate logic: e.g. $(u)(v)$ $(NPu \wedge VPv \rightarrow Suv)$, i.e. for every u and for every v, if u is an NP and v is a VP, then u concatenated with v is an S'. Thus the strings that can be generated by the grammar can be logically derived within the respective first-order system. The axioms and theorems will be understood as the statements made in a (scientific) theory of NL. "A grammar represented as an interpreted axiomatic theory will provide thus, above all, a deductive nomological explanation of the sentences of a language in the sense of the theory of knowledge" (Wang, 1973 : 302).

Montague grammar on the other hand is presented as an informally axiomatized deductive systems.

3) It would appear that Chomsky himself accepts this criticism when he offers to replace the term "knows" by 'cognizes', "If we decide to use "know" in a narrow sense, restricting it to conscious 'knowledge of' or to 'knowing how', as this notion is often construed, 'knowledge of' as in 'knowledge of language' will have to be explained in terms of a new technical vocabulary. Let us say that if a speaker knows the language L, then he cognizes L. Furthermore, he cognizes the linguistic facts that he knows (in the uncontroversial sense of 'know') and he cognizes the principles and rules of his internalized grammar, both those that might be brought to awareness and those that are forever hidden from consciousness. [Chomsky, 1976 : 364]

4) Of course it is quite unclear what a major phrasal category is in this system.

5) This constraint was stated by Ross (1971) ; it specifies that for elements placed on left branches of the phrase marker, Gapping goes forward [and deletion applies on the second conjunct], while for elements which are on right branches of the phrase marker, the rules goes backwards.

6) Cooper employs the following notational conventions. "If \bar{A} is a DS tree rooted by A, we let A' represent the first member of same sequence in $t(\bar{A})$. We let A'' represent the remaining members of that sequence. The translation rules are to be interpreted as showing sets of derived expressions corresponding to each syntactic configuration. For instance in

Adj'("Nom) , Nom" , Adj' is the first member of some member of $t(\bar{Adj})$, Nom' is the first member of some member of $t(\bar{Nom})$, Nom'' is the string obtained by concatenating the second through nth members of α , if α is an n-place sequence". [1975 - 144-145]

7) In order to make clearer these notions we quote in full the following definitions of analysis trees, category trees, tree representation, from Schnelle [1976 : 390-392]. In accordance with the notion of level structure, the symbols below are interpreted as follows :

A^0 is the set of elementary objects of the level.

A is the set of elementary and derived objects of the level.

F^0 is the set of operations.

P^0 is the set of syntactic categories.

Let $\beta_1, \dots, \beta_k, \beta_k$ be positive integers.

D.4.1. X satisfies the finite tree condition if

- (i) X is a set of finite sequence of positive integers and
- (ii) whenever $(\beta_1, \dots, \beta_k)$ is an element of X then every initial sequence of $(\beta_1, \dots, \beta_k)$ and every sequence $(\beta_1, \dots, \beta_{k-1}, \beta_k)$ with $\beta_k < \beta_k$ are also elements of X .

Let S_N be the set of finite sequences of positive integers.

D.4.2. The set T_N of tree - indexings is the set of subsets of S_N which satisfy the finite tree condition.

D.4.3. A tree - index is an element of a tree - indexing (i.e. an element of an element of T_N).

D.4.6. A tree indexed family is a family with a tree - indexing as index set.

Let $T, T_1, T_{11}, T_{12}, \dots, T_{1\beta}$ be terms, and $\langle \rangle$ be the empty sequence.

D.4.7. The analysis of x is a tree - indexed family of elements of $A(\theta_x \rightarrow A_x)$ such that θ_x is a tree - indexing and A_x is a subset of A and the mapping $\theta_x \rightarrow A_x$ is generated as follows :

(i) the index of $\text{Des}(T) = \langle \rangle$ (where $\text{Des}(T) = x$)

(ii) If T_1 is a subterm of T , the index of $\text{Des}(T_1)$

$= (\beta_1, \dots, \beta_k)$, for some natural number k , and there are $T_{11}, \dots, T_{1\beta}$ such that each is a subterm of T and T_1 and there is, for some γ , a term form

$F_\gamma(x_1, \dots, x_j, \dots, x_\beta)$ such that if the replacement of all x_j (for $1 \leq j \leq \beta$) results in T_1 , then for every T_{1j} (for $1 \leq j \leq \beta$), the index of $\text{Des}(T_{1j}) = (\beta_1, \dots, \beta_{k,j})$.

D.4.9. The construction analysis of x (= Montague's analysis tree) is a tree - indexed family K'_x of elements of $(A^0 \times \emptyset) \cup (A \times F^0)$, such that if $B_x : \theta_x \rightarrow A_x$ is the analysis of x and for $\beta \in \theta_x$ and some term T , $B_x(\beta) = \text{Des}(T)$, then $K'_x(\beta) = (\text{des}(T)), \text{Des}(\text{head of } T)$. (Note that the head of T is the empty set \emptyset if T is an element of A^0).

[D.3.5. The elementary operation head of a term form T_β (the head of T_β for 'short') is the leftmost elementary operation designator occurring in T_β if one occurs, and the empty set \emptyset , if not.]

D.4.10. The construction associated with analysis x is a tree - indexed family of elements $F^0 \cup \emptyset$ obtained from a construction analysis of x by taking only the second members of the values which $K'x$ assigns to indexes (i.e. taking only functions and no syntactic objects).

D.4.11. A category tree $K''x$ associated with a construction analysis of x is a tree - indexed family of elements of P^0 such that if $\theta_x : \theta_x \rightarrow A_x$ is the analysis of x and if for $\beta \in \theta_x$ and some term T , $B_x(\beta) = \text{Des}(T)$ and, if \mathcal{C} is the category of $\text{Des}(T)$, then $K''x(\beta) = \mathcal{C}$.

D.4.12. A structurally complete analysis of x is a tree - indexed family K_x of elements of $(A^0x \cup x P^0) \cup (A \times F^0x \times P^0)$ such that if $K's$ is a construction analysis of x and $K''x$ is a category tree associated with a construction analysis of x and $\beta \in \theta_x$ then $K_x(\beta) = K'_x(\beta) \times K''x(\beta)$; (i.e. the values K_x assigned to the β are triples taken from the Cartesian product indicated above.)

8. LSIT : 105.

9. Curry - Feys [1958 : 84]

A.I. The Underlying Structure of RRCs in English and Romanian

O. In this section we incorporate in the modified CS the conclusions of section IB regarding the categorial status of RCs and of relative pronouns, and then write PSRs for English and Romanian RRCs. We also compare our analysis with previous English or Romanian transformational treatments of the subject.

1. Like PTQ, Cooper - Parsons (1976) deal only with such that relatives introduced by (1)

$$(1) \text{ Nom} \longrightarrow \begin{cases} \text{Nom} \text{---} \text{vbl} \text{---} \text{such-that} \text{---} \text{S} \\ \text{N com} \\ \text{NP} \text{---} \text{vbl} \text{---} \text{Nom} \end{cases}$$

In section IB, RRCs were analysed as CN/₁ CN phrases (or ACN phrases). To accomodate RRCs in CS we first introduce general PSRs for nominal modifiers (CN/_n CN or ACN phrases).

$$(2) \text{ PS 6. Nom} \longrightarrow \begin{cases} \text{Nom} \text{---} \text{vbl} \text{---} \text{ACN} & \text{a} \\ \text{N com} & \text{b} \\ \text{NP} \text{---} \text{vbl} \text{---} \text{Nom} & \text{c} \end{cases}$$

$$(3) \text{ PS 7. ACN} \longrightarrow \begin{cases} \text{Adj Ph} & \text{a} \\ \text{ACN} & \text{b} \\ \text{Prep NP} & \text{c} \\ \text{V ing Ph} & \text{d} \end{cases}$$

From (2) and (3) we obtain (4) as the PSR that generates RRCs.

$$(4) \text{ PS 8 b. Nom} \longrightarrow \text{Nom} \text{---} \text{vbl}_n \text{---} \text{ACN}$$

In the preceding chapter we concluded that relative and interrogative pronouns should be treated as underlying determiners. To incorporate the conclusions of that analysis, we subcategorize Determiners into Det(erminers proper) (quantifiers) and Det_{wh} (binders).

$$(5) \text{ PS 5 b. NP} \longrightarrow \text{Det} \text{---} \text{Nom}$$

$$(7) \text{ PS 9. Det} \longrightarrow \begin{cases} \text{Det} \\ \text{Det}_{wh} \end{cases}$$

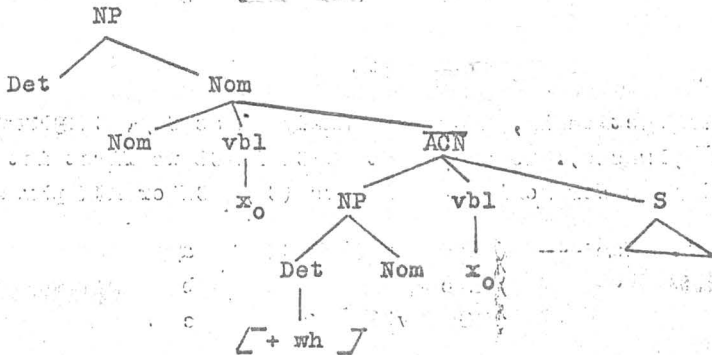
Relative clauses (ACN) and questions (BQ) result from combining relative or interrogative terms (NPs) with open sentences.

(8)

$$\begin{array}{l} \text{PS11a ACN} \longrightarrow \text{NP} \left(\text{vbl}_n \right) \text{S} \\ \text{PS12 BQ} \longrightarrow \text{NP} \left(\text{vbl}_n \right) \text{S} \end{array} \left. \vphantom{\begin{array}{l} \text{PS11a ACN} \\ \text{PS12 BQ} \end{array}} \right\} \text{where } (\text{Det})_{\text{NP}} \in \text{Det}_{\text{wh}}$$

Rules (8) are adequate for both languages. From (4) and (8) we arrive at the following DS for relative clauses (=lo), with the corresponding phrase marker (9) :

(9)



$$\begin{array}{cccccccc} (10) & \left[X \right] & \text{Nom} & \text{vbl}_n & \left[\text{NP} \right] & \text{vbl}_n & \# \text{S} \# - Y & \left[\text{ACN} \right] \text{NP} \\ & 1 & 2 & 3 & 4 & 5 & 6 & 7 \end{array}$$

conditions : 1) $\text{Det in } 4 \in \text{Det}_{\text{wh}}$

2) $3 = 5$

Condition 1 guarantees that the NP [= term 4] is of the appropriate sort [i.e. relative]. Condition 2 is the "coreference condition". In the case of relative clauses subordination is based on the fact that the matrix and the embedded clause share a coreferent element. In the present framework the condition is easily stated : the index variable of the relative term is the same as that of the antecedent. An additional well-formedness condition on (10) is that the S [= term 6] contains a free variable of the same index with the relative term. This, however, is a general condition on quantification (at any level) and binding, a condition which is independent of relativization.

Note. If this last mentioned condition is not met, the following rule (Vacuous Quantification Deletion) applies

[Cooper-Parsons 1976 : 359]:

$$\text{NP} \quad \text{vbl}_n \left\{ \begin{array}{l} \text{S} \\ \text{VP} \\ \text{Nom} \end{array} \right\}$$

If such a rule were to apply to (9), the resulting structure will no longer meet the proper analysis for relativization

$$\Rightarrow \begin{array}{ccc} 1 & 2 & 3 \\ 0 & 0 & 3 \end{array}$$

and will thus be rejected.

2. (10) is an adequate input for relativization in English and Romanian and it is, on balance, preferable to other analyses available in the literature, briefly presented below. We also stress that (10) is not essentially new, that it is basically similar to the Nom S analysis proposed by Dean (1967). Dean used the following rules, to introduce RRCs : $\text{NP} \rightarrow \text{Det} \text{ N}$
 $\text{N} \rightarrow \text{N} \text{ S}.$

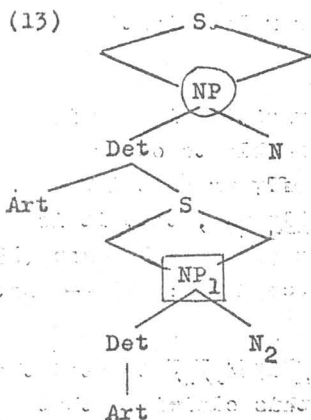
2.1. The Art S analysis [e.g. Smith [1964]] treated the RC as a member of the determiner class, thus claiming that its grammatical function is closely related to that of other determiners. The main evidence in favour of this analysis comes from the remark that there is a (limited) class of nouns that cannot occur unless there is either a relative clause or a demonstrative determiner ; these nouns have very general meaning (homonyms of them were used as Pro-forms in Katz - Postal [1964]), and are subject to the further constraint that they cannot be pronominalized ; eg. E : way, kind, manner, time, place. R : mod, loc, fel (?).

- (11) a) \times He did it in a way / the way / in it.
 b) He did it in the way that the teacher had prescribed.
 c) He did it in a strange way / in this way.
- (12) a) \times A făcut-o într-un mod / în modul.
 b) A făcut-o în modul pe care îl prescriesese profesorul.
 c) A făcut-o într-un mod ciudat / în acest mod.

Within the Art S analysis, one can state a contextual constraint on the insertion of nouns like way, manner etc., namely that their determiners cannot consist solely of [- Dem] [+ Def] elements. It is not obvious how this

constraint can be stated under the alternative analyses .
The Art S analysis also permits a convenient formulation of
any restrictions between determiners and RRCs, if any exist.

Under this analysis RCs are introduced in the following
configuration:

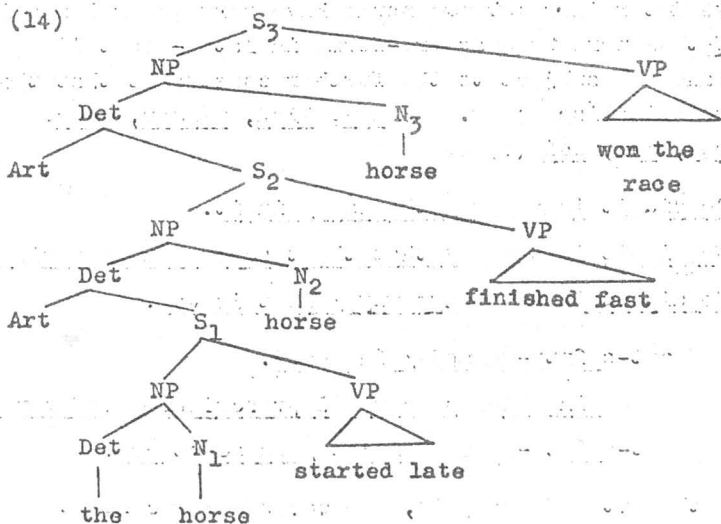


NP \rightarrow Det N

Det \rightarrow Art S

This analysis faces difficulties.
The identity condition cannot be said
to hold between the boxed and the
circled NP, because the Det of the
circled NP, which contains the relative
clause itself, differs from the Det of
the boxed nominal. The best solution,
in this analysis is to state the identity
condition as (lexical) identity

of N_1 and N_2 . But then there arises a serious syntactic
problem with the self-embedding of RCs as in PM 14 [example
taken from Stockwell, 1973 : 424]



PM (14) allows the generation of the clearly ungram-
matical sentence (15).

- (15) ^{xx} The horse that that started late _{S₁} finished
fast _{S₂} won the race _{S₃}.

As shown in Stockwell [1973 : 425], " it is not obvious how one might disallow the self embedding of (14) by a general condition, without also disallowing it in (16), an undesirable consequence. A specific condition can be imposed on the transformation but this would be ad-hoc.

- (16) The fact that the evidence that Nick was guilty was interesting led to the wrong conclusion.

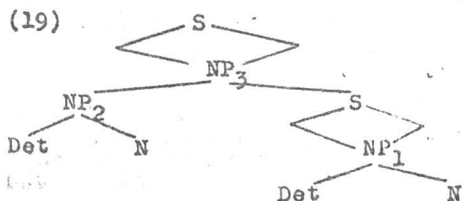
A PM of type (5), also produces ungrammatical Romanian sentences :

- (17) ^{xx} Calul care care a pronit tîrziu a avut un finis
puternic a cîştigat cursa.

2.2. Because of the ungrammaticality, for all speakers, of examples like (15) and (17), a different analysis of RRCs has been widely assumed [see Ross [1967]], Manoliu Manea [1977], Chomsky [1973]].

- (18) $NP \rightarrow \left\{ \begin{array}{l} NP \text{ } \overline{S} \\ \text{Det } \text{ } N \end{array} \right\}$ This formulation is known as the NP \overline{S} analysis [see PM (19) below].
 The advantage of this analysis is

that the identity condition can be stated on the shared NPs (in (19)) without having the derivation block. Ross [1967] convincingly argues that since the shared NP₁ of the RC is pronominalized under identity with the head NP₂ and since the pronominalized forms who, which are definite pronouns, like he/she/it, which involve coreferentiality - wh - pronominalization can also be assumed to require coreferentiality (of NPs). The coreference condition was captured in our analysis



as already explained. Under the NP \overline{S} analysis the requirement of NP coreferentiality leads to semantic trouble, in the case of

universal and negative Dets.

If the matrix and relative had shared an identical [= coreferential] NP, then the second sentence in each of the pairs in (20) would be entailed by the first. But this is clearly not the case, and thus the relative clause cannot contain a "coreferent" NP.

(20) (a) All students who can spell decently will pass the exam.

(b) All students can spell decently.

(21) (a) Orice student care rezolvă corect analiza sintactică ia examenul.

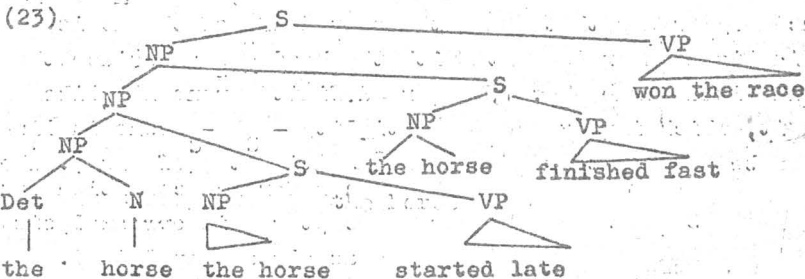
(b) Orice student rezolvă corect analiza sintactică.

(22) (a) I know no boy who likes music.

(b) No boy likes music.

(19) is not an appropriate structure for RRCs, because RRCs are noun modifiers not NP modifiers as (19) claims. The NP-S analysis successfully solves the problem of self-embedding relatives.

Corresponding to (14), there is (23), where each relative clause will be interpreted as modifying the head plus the lower relative clause. Sentence (24) offers an instance of "stacked relatives", a class of RRCs which is not infrequent in English.¹⁾



(24) The horse that started late that finished fast won the race.

(25) a The only social work [they had] [that was untainted by pity had to do with the Volunteer Fire Brigade.

[V - 53]

a' Singura activitate socială pe care o aveau care nu era viciată de milă era în legătură cu corpul de pompieri voluntari.

b There is a man I once know who is now a baronet [Pt : 652]

b' Există un om pe care l-am cunoscut cîndva care e acum baronet.

2.3. Of the transformational analyses of Romanian relatives, those presented by Vasiliu-Golopenția [1969 = VG] and Manoliu Manea [= MM, 1970, 1971, 1977] are more important. In the Romanian analyses, in contrast with the English ones, RCs are generated under a special categorial symbol Rel, under the domination of an NP ; eg.

(26) a GN → Predet Nominal Rel [MM, 1971 : 259]
 b GN → { Nom Art Rel } [VG, 1969 : 78
 { Det Nom Art Rel } rule C 6, VII, VIII]

The symbol Rel is given essentially the same interpretation by all authors :

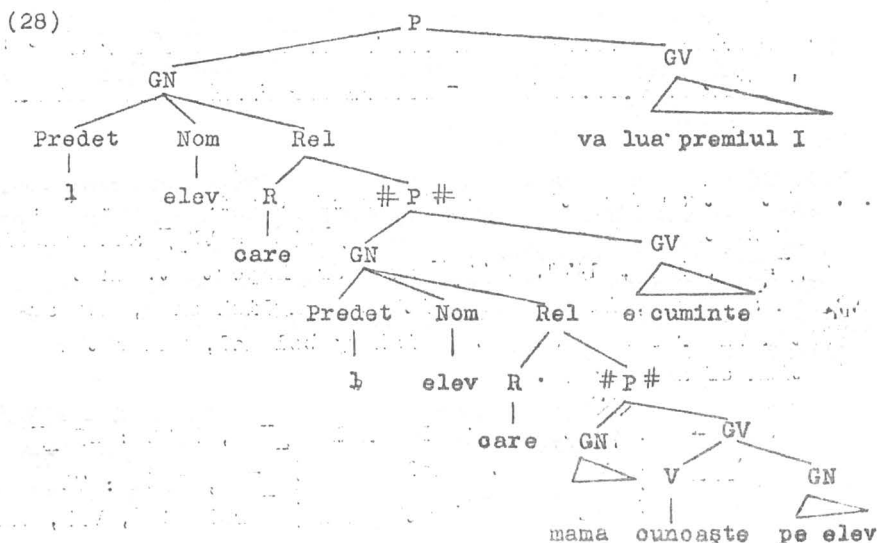
(27) a Rel → R # P # [MM, 1971 : 260]
 b Rel → R (Nmz!) # P # [VG : 198]
 c R → (cel) relativ Flex (Pos)
 f. rel(ativ) → care, unde
 g Pas → al, a, ai, ale

The identity condition holds between lexically identical nouns in the matrix and RC. The analysis does not avoid the self embedding problem, as can be seen in (28), where MM's rules are used.

In order to avoid the generation of (29), VG : 199 imposed the following condition : "Aplicarea transformării se blochează

atunci cînd nominalul reluat într-o propoziție relativă este la rîndul lui determinat de o altă relativă". PM 28 violates this condition producing the ungrammatical (29):

The difficulty for this analysis is that, while it successfully prevents self - embedding structures, it cannot produce stacked relatives at all; stacked relatives are infrequent but still possible in Romanian, as in (30):



(29) ~~xx~~ Elevul [care/pe care mama îl cunoaște] e cuminte]
va lua premiul I.

(30) ... și atunci am trăit ore de spaimă despre care am
pomenit al cărei motiv dacă s-ar fi dezvăluit s-ar
fi petrecut o catastrofă. [MP - 7]

While in the English analyses the relative marker is introduced transformationally, in the Romanian analyses the symbol R is present at DS level, and relativization is a copying rule [" trecerea indicilor de caz, gen, număr, posesiv, prepoziție de sub dominarea nominalului din secundară sub dominarea simbolului R (= care)" [MM, 1971].

In our analysis we have, followed the Romanian linguists, introducing the relative manner at DS level,

rule 8 ($ACN \rightarrow NP \text{ vbln } S$) is similar to rule 27 a ($Rel \rightarrow R \text{ } P$) with the difference that the relative element proper (R) is given a basically nominal status. [it is analysed as a pronoun with derived conjunction role, rather than as a conjunction which transformationally acquires nominal characteristics].

2.4. Regarding the minimal expansion of the Romanian NG, we have adopted the opinion of MM [1971], that the Romanian grammar should make use of the rule: $GN \rightarrow Predet \text{ Nominal}$ (For clarity, we will continue to use Det for her Predet). MM rejects the analysis of VG, who claim that the minimal obligatory expansion of the GN is $GN \rightarrow Nominal \text{ Art}$, as can be seen from (31) below:

(31) $GN \rightarrow (Det) \text{ Nominal } Art \text{ (Conj } \# P \#) \text{ (de } Inf) \text{ (Rel)}$ [VG: 72]. Art is the definite article, isolated from the rest of the determiners. Surface structures which do not contain a definite article are generated by means of an article - deletion transformation. MM offers two arguments against this analysis:

a) an argument of descriptive adequacy. "Atita timp însă cît există anumite contexte în care prezența sau absența articolului crează diferențieri semantice, raportul dintre Art Nominal și Nominal nu poate fi considerat numai un raport de transformare. Comparați:

Copiii se joacă în curte.

Copii se joacă în curte." [MM, 1971.: 259]

b) a typological metalinguistic argument. In all Romance languages the minimal NP expansion is of the form $NP \rightarrow Predet \text{ Nominal}$; to have developed a class of noun determiners which can only occur with nominals, is the most important characteristic of Romance languages, as against Latin. This class includes, in Romanian: Det \rightarrow un, o, nici un/o, vreun, niște, acel. If the definite article is not included among these elements at any level of description, then Romanian alone would be characterized by the rule:

(32) $NP \rightarrow \left\{ \begin{array}{l} Nominal \text{ } Art. \\ Det \text{ } Nominal \text{ } Art. \end{array} \right\}$

However, if the definite article is included among Dets, then Romanian will have a rule of Def Article repositioning and the NP in all Romance languages has the same minimal expansion.

(33) NP \rightarrow Det Nominal

We have adopted (33), more convenient for the purpose of an English Romanian contrastive description.

2.5. In our analysis, RCs are introduced by rule (8)

$\left[\overline{\text{ACN}} \rightarrow \text{Det}_{\text{wh}} \text{Nom} \left(\text{vbl}_n \text{S} \right) \right]$, simpler than 27 c above $\left[\text{i.e. Rel} \rightarrow (\text{cel}) \text{relativ} \left(\text{Flex} \right) (\text{Pos}) \right]$. The information carried on by Flex will be given by syntactic features, while Pos and cel are not needed.

2.5.1. The symbol Pos need not figure in this rule ; genitives are not derived transformationally, but obtained in the base. Pos $\left[= \text{al, a, ai, ale} \right]$ will be generated in front of genitive nouns, or it will be introduced transformationally in nominalizations.

2.5.2. More interesting for our work is the adjectival article cel.

The adjectival article signals the presence of (certain classes of) attributes (modifiers) when the head noun is definite.

- (34) a. cerul cel albastru $\left[\text{cel} + \text{Adj} \right]$
 b. casa cea de pe deal $\left[\text{cel} + \text{Prep NP} \right]$
 c. casa cea pe care voiai s-o cumperi $\left[\text{cel} + \overline{\text{ACN}} \right]$
 d. cel pe care l-ai întâlnit $\left[\text{cel} + \overline{\text{ACN}} \right]$
 e. copilul cel pierdut $\left[\text{cel} + \text{Past Participle} \right]$

In 34 a - e, cel signals the presence of a $\text{CN}/_n \text{CN}$ constituent.

We think that cel should not be treated as an expansion of R, but as an expansion of the category Det $\left[\text{or of the category Pronoun, when the head noun is deleted, as in 34 d} \right]$. The sequence l-cel is a positional variant of the article, occurrent in the context of (certain) nominal

modifiers. In a more classical transformational treatment, where all - of 34 a - e are based on RCs, one might say that cel - which might as well be introduced transformationally - is an effect of the so-called Matrix Definitization Transformation [Stockwell 1973 : 433]. The presence of the RC changes to definite the determiner of the matrix, or "strengthens" its definite character. Cel is a supplementary marker of definiteness. Be that as it may, cel is an element of the matrix determiner not an element of R (in 27c). There are several arguments in favour of this position.

a) like most determiners, cel agrees with the determined noun in gender, number, case.

(35) Premiile au fost date studentilor celor constiincioși.

b) cel is actually a reduced version of the demonstrative, which can replace it in most contexts.

(36) a. Amintește-ți de cerul acela/cel albastru.

b. Casa aceea/cea de pe deal e de vânzare.

c. Casa aceea/cea pe care voiai s-o cumperi s-a vândut.

MM (1977) has noted, however, that cel differs from acel in that only the full form, acel, can have properdeictic function. Distributionally, however, the two forms behave alike. Moreover, ^{still} that cel is related to the demonstrative is proved by the fact that the two of them never co-occur :

(37) a. acest creion ascuțit // ≠ acest creion cel ascuțit

b. creionul acesta ascuțit // ≠ creionul acela cel ascuțit

c) cel is a definite determiner ; it is excluded by all indefinite determiners and it co-occur with definite ones.

[the possessives, toți, etc.]

(38) a. *un/ fiecare/ orice/ nici un bărbat cel inteligent

b. *mulți/ cîtiva/ unii/ niște bărbați cei inteligenți

c. băiatul meu cel deștept

d. Toți copiii cei cuminți vor merge la teatrul de păpuși.

Cel is also excluded when the noun has no determiner. We analyse

it as a (discontinuous) morphemic component of the definite article [1.(cel)].

d) it is highly desirable to consider that the same element cel occurs in 39 a, b below.

(39) a. Prietenii celei devotați cauzei nu vor trăda.

b. Cei care sînt devotați nu vor trăda.

If this is so, it will be immediately apparent that cel belongs to the Det of the matrix or at any rate to the matrix, if we take into account sentences like (40), where cel is marked according to the case of the antecedent, while the relative (care) which is dominated by Rel is marked according to the function of the identical nominal in the RC.

(40) a. Va rămîne veșnic în inima celui/pe care îl iubește.

Gen Acc

If what we said above is correct, then cel cannot be used as a trigger of an "Attributive" transformation different from a "relative" transformation, in other words as a signal for Relative Clause Reduction, because it does occur with non-reduced relatives.

(41) a. Cel pe care-l aștepti e dus și nu mai vine.

b. Casa cea de care mi-ai vorbit.

"Simbolul optional cel este de natură să semnaleze necesitatea aplicării unei transformări de relativizare din care să rezulte nu o propoziție relativă ci a) un atribut adjectival, b) un atribut substantival în genitiv sau acuzativ cu prepoziție". [VG, 1969 : 93].

In conclusion, cel is best viewed as a supplementary marker of definiteness of the antecedent, generated in the base under the Det (1.(cel)) or introduced transformationally.

2.5. In conclusion, the grammar of both languages can make use of the following rule (42) which generate PMs like (43).

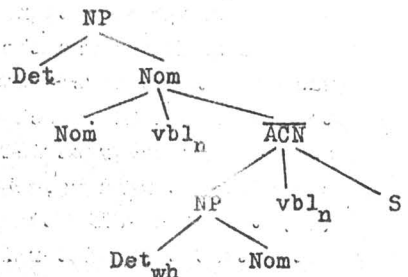
(42) NP → Det Nom

Det → { Det
Det_{wh} }

Nom → Nom vbl_n ACN

ACN → NP vbl_n S

(43)



(43) or its equivalent (44) is a good input for relativization if it meets the following conditions (already explained on p 7)

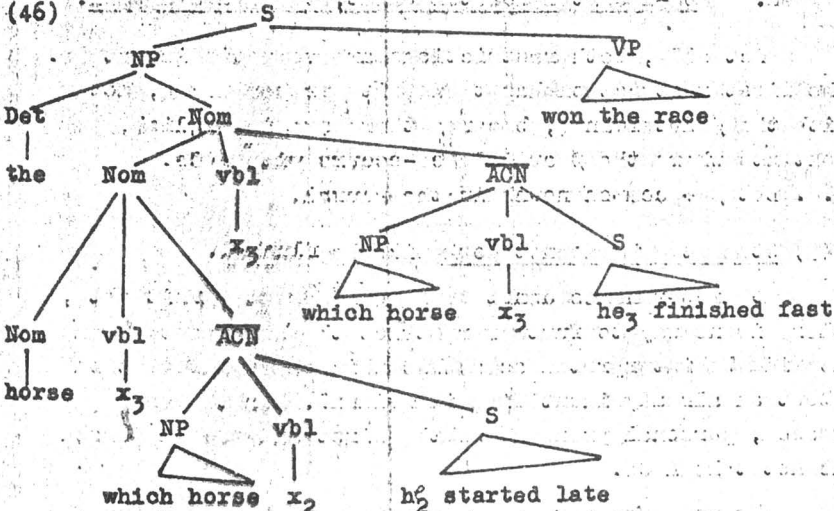
(44) NP [X Nom vbl_n [NP vbl_n # S # Y] ACN] NP
 1 2 3 4 5 6 7

Conditions : 1) Det in 4 & Det_{wh}

2) 3 = 5

The structure we have chosen is free from self - embedding problems and able to generate stacked relatives. Sentence (24) (= 45) is assigned structure (46).

(46)



(45) The horse [that started late] [that finished fast] won the race.

2.7. As already mentioned, one putative advantage of the Art-S analysis was the fact that within that theory it was easy to state co-occurrence restrictions between determiners and RCs. Such restrictions were elegantly stated as co-occurrence restrictions between members of the same class of determiners, while in terms of a structure like (43) this generalization is lost. Thus Smith [1964] notes that the \emptyset determiners with proper names and the delictic determiners do not tolerate RRCs, but only NRRCs.

- (47) a. * Mary whom he met yesterday is a teacher.
 b. * Maria pe care a cunoscut-o ieri e profesoară.
 c. Mary, whom he met yesterday is a teacher. 44
 d. Maria, pe care a cunoscut-o ieri, e profesoară.
- (48) a.? * Give the book to this boy who has no money.
 (accompanied by pointing gesture).
 b.? * Dă-i cartea acestui băiat care nu are bani.
 c. Give the book to this boy, who has no money.
 d. Dă-i cartea acestui băiat, care nu are bani.

Actually, both restrictions are semantic in nature. The first restriction has to do with proper names, not with the \emptyset determiner, because there are, in English, contexts where the \emptyset article co-occurs with RRCs; e.g. Det \emptyset + common nouns in the plural.

- (49) Students who do not work will be flunked.

As proper names denote unique referents, unit sets, there is no way to further restrict the set, so that any RC will be interpreted as a NRRC which adds information about an already identified individual.²⁾ For the same reason, personal pronouns of the first and second person do not take RRCs.

The need for a regular paradigm may be the reason why even with III^d person personal pronouns, RRCs are scarcely used, although there are no semantic reasons for so doing: He who, they who, * ei care, * el care

are replaced by the one who, those who, cel care, acel care etc; personal pronouns, which are not used as determiners, are replaced by forms which can function as determiners in the surface structure, so that the string conforms to a regular pattern :

Det [Nom] ACN with the subsequent deletion of the nominal [Acel [oameni] care =]. Acel care ; multi [oameni] care = multi care ; many [people] who ... =) many who ; * ei oameni care .. =) * ei care ...]

As for this / that and acest / acel, they cannot accept RRCs, only when they are deictic, gestural words. In their discourse anaphoric or cataphoric use and in their emotional use [Lakoff 1974], they allow RRCs, frequently for acel / that and more seldom for acest / this.

- (50) a) The Rosencrantz of the Oval Office is now metamorphosed into this all-comprehending angel who, in fact, records when and as he sees fit. [Time / June 1976 : 69]
- b) He was not a Happening man, but he had taken deep interest in and had carefully explored this act which called itself anti-art.
- c) Then he washed his hands with that child-like pleasure that overcame him whenever he had soiled his hands by genuine down - to - earth work. [H B : 11]
- d) The way [in which they stood up] revealed that familiar indifference which is observed only in monasteries.
- e) ... vrînd parcă să rămînă în mijlocul acestei simplități care ne-ar fi izbăvit de toate grijile. [MP - 11].

Note. The forms he who, and more seldom They who still occur in older or literary style : They will be derived by a very late optional transformations which replaces the one who/the ones who by he who / they who.

- (51) (a) "I wish to explain to him [who asks]. I know
'not [R - 354] // Let him [who would challenge]
ought in this translation] ask the Jews
[R - 341]
- (b) They who obtain divinity become gods.

The restriction for deictics is easily explained : the pointing gesture makes superfluous any identifying description as the referent is visually present. Sentences with deictic determiners and RRCs are filtered away as pragmatically unacceptable.

2.8. The features we will be using are mainly intended to distinguish between the various wh - pronouns. In fact the translation rule presented in section IB for wh-pronouns referred to the translation of the [+ wh] features.

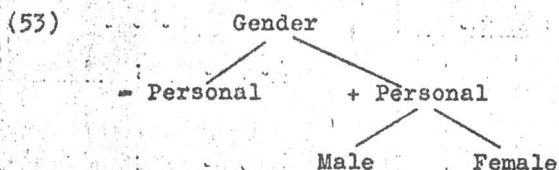
- (52) [+ wh]_{Det} $\rightarrow \widehat{PQ} \wedge x [P \{x\} \wedge Q \{x\}] \dots$

The following set of features will be used.

2.8.1. [case]; this is a contextual features on nouns (and pronouns) assigned by a case marking rule reflecting certain dominance relations (government) in the phrase marker. The case feature may be copied on other categories [e.g. determiners] by concord rules.

2.8.2. The features [+ Count] and [+ pl] are also necessary. As we do not discuss [- Count] nouns, for which special semantic rules must be devised, we will usually refer only to [+ pl].

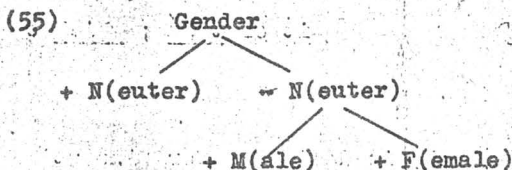
2.8.3. The feature [+ gender] is also relevant for the choice of relative pronouns : e.g. the gender oppositions : cîi/cîți and cîți/cîte in Romanian. It is also gender that opposes which / who. It is customary to assume the existence of a feature [+ Personal] to account for this contrast. This description is not entirely satisfactory because there are other categories of nouns (names of animals, countries etc.) that can be pronominalized by who although they are



- Personal; of course, in the case of relative pronouns one can easily say that who is used for antecedents replaceable by he/she/they ; while which is used for antecedents replaceable by it/they. But this only means that we have to be able to account for the choice of he/she/it/they! The most satisfactory solution is still the one suggested by Bloomfield [1933] and actually adopted by Quirk [1972 : 187], that nouns are to be subcategorized according to substitution classes. Thus horse differs from mare not in terms of [+ Male] vs. [+ Female], but because they belong to different substitution classes :

- (54) horse ∈ it/he/they
mare ∈ she/they

We will tentatively explore a system of features which might yield a subclassifications of nouns which is closer to Bloomfield's. The features are presented in (55).



The advantage of (55) is that , who/he/she are freely assigned to animals, countries etc, without conflict with their

[- Human] nature. The more important modification we suggest is the use of disjunctive features, in the object language (in the non-terminal vocabulary as well as in the metalanguage. A similar suggestion is found in Weinreich [1968]. We can write the following redundancy rules :

- (56) [Male] → [- Neuter]
 [Female] → [- Neuter]
 [Male V Female] → [- Neuter]

We have the following classes :

(57)	<u>Gender specification</u>	<u>Substitute</u>
a)	chair [+ N]	<u>it</u> / <u>they</u> ; <u>which</u>
b)	boy [+ M]	<u>he</u> / <u>they</u> ; <u>who</u>
c)	girl [+ F]	<u>she</u> / <u>they</u> ; <u>who</u>
d)	teacher, friend, person [+ M V + F]	<u>he/she/they</u> ; <u>who</u>
e)	everybody, someone [- N]	<u>he</u> , <u>they</u> ; <u>who</u>
f)	horse / \ [+ N] V [+ M]	<u>it/they</u> or <u>he/they</u> ; <u>which</u> or <u>who</u> (?)
g)	ship, England / \ [+ N] V [+ F]	<u>it/they</u> or <u>she/they</u> ; <u>which</u> or <u>who</u>
h)	army, family / \ [+ N] V [- N]	<u>it</u> or <u>they</u> ; <u>which</u> or <u>who</u>

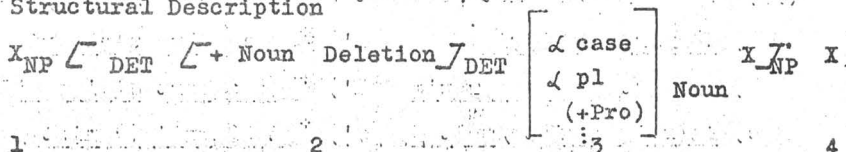
The choice in cases f) - h) is decided before insertion in the phrase marker. Notice that we agree with Quirk [1972] in considering the use of which or who, with collectives to be a matter of gender rather than number. Generalizing over (a)-(h), one can say that who is used with [- Neuter] nouns while which is used with [+ Neuter] nouns or uses of nouns.

Given the fact that English gender is semantic or referential in nature, it will be easy to associate these features with certain conventional implicatures ; thus, for instance, [+Female] is associated with female sex and with attributes like closeness, intimacy, delicacy, elegance etc. Such implicatures are conversationally exploited in various pragmatic situations of upgrading, - use of he, she for nouns whose conventional substitute

is it - , and downgrading', - use of it for nouns whose conventional substitute is he / she - ; (see Mathiot [1975] Lakoff [1971 b]).

2.8.4. The feature [+ Noun Deletion]. As most pronoun sub-classes (e.g. the indefinites) will continue to be derived from corresponding determiners, the pronominal use is obtained by means of a Noun Deletion transformation which deletes the (determined) nominal and introduces the feature [+ Pro], which means the change of grammatical category. Some determiners (e.g. the ; niste etc) do not allow this transformation; for others it is obligatory [e.g. who]; for most of them [which, what, every, any, fiicare, tot etc.] it is optional. The rule may operate under identity or when the noun is a Pro - form in the sense of Katz Postal [1964]. The rule is stated as follows in Stockwell [1973 : 286].

(58) Structural Description



Change : Add [+ Pro] to 2.

Delete 3.

2.8.5. The feature [+ (Noun) Attach(ment)] is an English specific rule which accounts for the morphemic composition of forms like somebody, everyone, anything etc. The feature [+ Attach] is assigned to the respective determiners [every, any, some, no] and to the nominals - one, -thing, -body, -place, -time, -times.

2.8.6. The description also makes use of the feature [+ Definite], [which, as we have said, does not necessarily send to the logical the]. It is a syntactic feature used to subcategorize determiners with respect to language specific distributional properties. Stockwell [1973 : 125] notices that no pronoun marked [+ Definite] undergoes Noun - Attachment in English. Stockwell [1973] includes personal pronouns, demonstratives and relatives in the class [+ Definite], and sets up the following subcategorial feature [+ Def] \rightarrow [- Attach]

In the same way, the feature $\left[+ \text{Definite} \right]$, assigned to determiners has been repeatedly used to describe reduplication of the direct and indirect object in Romanian [e.g. GA [1963], MM [1977], Farkas [1978]]. Object Reduplication $\left[= \text{OR} \right]$ in Romanian depends on several factors; of which the most relevant are: a) position with respect to the verb; preverbal objects are more readily reduplicated than postverbal ones; b) the "personal" character of the object, a feature which often correlates with the use of pe for DO_s : I-am văzut pe Ion / pe copil / * pe creion. c) the nominal or pronominal character of the object: pronouns are more easily reduplicated than full NP_s ; d) $\left[+ \text{Definite} \right]$ pronouns (and NP_s) are more readily resumed than indefinite ones. The examples below illustrated the importance of those factors for Direct Object Reduplication in Romanian.

A. Post-verbal DO_s

(59) The object is not preceded by pe $\left[\text{It is } \left[- \text{Personal} \right] \right]$.

- | | |
|--|--|
| a) <u>Cumpără o pălărie</u> | a') * <u>O cumpără o pălărie</u> |
| b) <u>Nu port nici o pălărie</u> | b') * <u>Nu o port nici o pălărie</u> |
| c) <u>Îngrijesc niște/multe/</u>
<u>puține/orice/cîteva flori</u>
<u>rare.</u> | c') * <u>Le îngrijesc niște/multe/</u>
<u>puține/orice/cîteva/flori</u>
<u>rare.</u> |
| d) <u>Iubea și unele/alte flori</u> | d') * <u>Le iubea și unele/alte</u>
<u>flori rare.</u> |
| e) <u>Am stropit fiecare floare/</u>
<u>toate florile.</u> | e') * <u>Le-am stropit fiecare</u>
<u>floare/toate florile.</u> |
| f) <u>Am ascuțit acest/celălalt</u> | f') * <u>L-am ascuțit acest/celă-</u>
<u>creion.</u> <u>lalt-creion.</u> |
| g) <u>Am cumpărat ziarul.</u> | g') * <u>L-am cumpărat ziarul.</u> |

(59) shows that if the DO is a full NP of structure:

$\left[+ \text{Def} \right]_{\text{Det}} + \left[- \text{pe} \right]_{\text{N}}$, DOR does not occur. Consider the same structures with $\left[+ \text{pe} \right]$ nouns [pe is obligatory with proper names, optional for personal nouns preceded by definite determiners: (L)-am văzut pe băiat/băiatul/pe acest băiat etc.

- (60) a) ?? Ajut pe Ion/pe tata a') Il ajut pe Ion/pe tata
la tăiatul lemnelor. la tăiatul lemnelor.

- | | |
|--|---|
| b) ?? <u>Ajut pe copilul acesta/celălalt.</u> | b') <u>Il ajut pe copilul acesta/celălalt.</u> |
| c) ? <u>Am rugat pe toți studenții/pe fiecare student să fie de acord.</u> | c') <u>/Am rugat pe toți studenții/pe fiecare student să fie de acord.</u> |
| d) ?? <u>Am întrebat pe unii/alți studenți dacă sînt de acord.</u> | d') <u>I-am întrebat pe unii/alți studenți dacă sînt de acord.</u> |
| e) ? <u>Am rugat pe mulți/cîtiva/putini/? niște studenți să fie de față.</u> | e') <u>I-am rugat pe mulți/cîtiva/putini/niște studenți să fie de față.</u> |
| f) ? <u>Am rugat pe-o fostă studentă să mă ajute.</u> | f') <u>Am rugat-o pe o fostă studentă să mă ajute.</u> |

Thus with / + pe / NP reduplication is normal, but not obligatory. Sentences without DOR seem slightly stilted but are still common. Notice that it is the use of pe rather than the personal character of the noun which influences DOR : văd copilul/ *il văd copilul, but ?? văd pe copil/ il văd pe copil. Let us now examine sentences where the DO is a pronoun, not preceded by pe or preceded by pe.

- | | |
|--|--|
| (61) a) <u>Caut ceva.</u> | a') * <u>Il caut ceva.</u> |
| b) <u>Nu laud nimic.</u> | b.) * <u>Nu-l laud nimic.</u> |
| c) <u>Cumpăr orice.</u> | c) * <u>Il cumpăr orice.</u> |
| d) <u>Am căutat cîteva/multe multe în pod.</u> | d) * <u>Le-am căutat cîteva/multe în pod.</u> |
| e) <u>Caut pe cineva bun la engleză.</u> | e.) * <u>Il caut pe cineva bun la engleză.</u> |
| f) <u>Nu laud pe nimeni.</u> | f) * <u>Nu-l laud pe nimeni.</u> |
| g) <u>Ajut pe oricine.</u> | g) ?? <u>Il ajut pe oricine.</u> |
| h) ? <u>Am ajutat pe mulți/pe cîtiva în tinerețea mea.</u> | h) <u>I-am ajutat pe mulți/pe cîtiva în tinerețea mea.</u> |

- | | |
|------------------------------------|------------------------------------|
| 1) <u>Cîtă brînză cumperi ?</u> | 1) <u>Cîtă brînză cumperi ?</u> |
| ≡ <u>Cumpăr toată.</u> | <u>O cumpăr toată.</u> |
| ?? <u>Cumpăr pe toată.</u> | <u>O cumpăr pe toată.</u> |
| j) ?? <u>Am rugat pe toți să</u> | j) <u>I-am rugat pe toți să</u> |
| <u>vină.</u> | <u>vină.</u> |
| k) ?? <u>Am rugat pe unii/pe</u> | k) <u>I-am rugat pe unii/alții</u> |
| <u>alții să mă ajute.</u> | <u>să mă ajute.</u> |
| l) ? ≡ <u>Am rugat pe celălalt</u> | l) <u>I-am rugat pe celălalt</u> |
| <u>să mă ajute.</u> | <u>să mă ajute.</u> |
| m) ≡ <u>Eu am confecționat pe</u> | m) <u>Eu l-am confecționat pe</u> |
| <u>acesta, iar Ion a confec-</u> | <u>acesta, iar Ion l-a con-</u> |
| <u>ționat pe cel de pe raft.</u> | <u>fecționat pe cel de pe</u> |
| | <u>raft.</u> |
| n) ≡ <u>Vreau pe-al meu.</u> | n) <u>Il vreau pe-al meu.</u> |
| o) ≡ <u>Am ajutat pe el.</u> | o) <u>I-am ajutat pe el.</u> |

This paradigm clearly shows the relevance of the feature $\left[+ \text{Def} \right]$. All the indisputably definite pronouns take pe, and DOR is obligatory (61.1 - o : personal pronouns, possessive pronouns, demonstrative pronouns). The feature $\left[+ \text{Def} \right]$ is inherent or introduced by a definitization transformation. Notice that it appears to be convenient to attach the syntactic feature $\left[+ \text{Def} \right]$ to toți / unii / alții, which behave very much like the definites.

This is not surprising if we notice that toți always co-occurs with definite nouns $\left[\text{toate florile} \right]$, while the pronouns unii / alții, acquire a definite article in their morphemic structure (alt om // altul). Of the indefinites, those which do not take pe never allow DOR (57 a - d). Even of the indefinites that take pe, some do not allow DOR (57 e, f, g) ; for others (57 h), DOR is normal, but sentences without DOR are not ungrammatical.

Topicalization will make DOR obligatory or at least optional with the exception of $\left[- \text{Definite}, -\text{pe} \right]$ pronouns. Below we give the pre-verbal version of sentences (59), (60), (61) :

B. (62) Preverbal objects

- | | |
|--|---|
| a) <u>O pălărie cumperi oriunde.</u> | a') <u>O pălărie o cumperi oriunde.</u> |
| b) <u>Nici o floare n-ai îngrijit</u>
<u>cum trebuie.</u> | b') <u>Nici o floare n-ai îngrijit-o</u>
<u>cum trebuie.</u> |
| c) <u>Multe/cîteva fotolii am</u>
<u>pus în pod.</u> | c') <u>Multe/cîteva fotolii le-am</u>
<u>pus în pod.</u> |
| d) <u>Alte flori rare a îngrijit</u>
<u>Ion.</u> | d') <u>Alte flori rare le-a îngrijit</u>
<u>Ion.</u> |
| e) ? <u>Unele flori a stropit</u>
<u>Ion.</u> | e') <u>Unele flori le-a stropit</u>
<u>Ion.</u> |
| f) <u>Toate florile a îngrijit</u>
<u>Tom.</u> | f') <u>Toate florile le-a îngrijit</u>
<u>Tom.</u> |
| g) <u>Scaunul acesta/celălalt</u>
<u>a sculptat maestrul.</u> | g') <u>Scaunul acesta/celălalt l-a</u>
<u>sculptat maestrul.</u> |
| h) <u>Creionul meu am pus acolo.</u> | h') <u>Creionul meu l-am pus acolo.</u> |
| i) <u>Creionul am pus în sertar.</u> | i') <u>Creionul l-am pus în sertar.</u> |

While (59) had shown that if the DO is $\left[\begin{smallmatrix} \text{ } \\ \text{ } \end{smallmatrix} \right] \text{Def} / \text{Det} + \left[\begin{smallmatrix} \text{ } \\ \text{ } \end{smallmatrix} \right] \text{pe} / \text{NP}$, DOR does not take place, (62) shows that for a topicalized and syntactically $\left[\begin{smallmatrix} \text{ } \\ \text{ } \end{smallmatrix} \right] \text{Def}$, pe / DO (including unii, toți), DOR becomes obligatory: sentences with non-reduplicated objects are ungrammatical ((62 f) - i)). For topicalized objects with $\left[\begin{smallmatrix} \text{ } \\ \text{ } \end{smallmatrix} \right] \text{Def} / \text{Det}$, DOR is optional ((62 a) - e)). In the same way, it is easy to verify that for $\left[\begin{smallmatrix} \text{ } \\ \text{ } \end{smallmatrix} \right] \text{pe} / \text{DO}$, which are full NP₀, DOR is obligatory or at least better.

- | | |
|--|--|
| (63) a) <u>Pe o fostă studentă am</u>
<u>rugat să mă ajute.</u> | a') <u>Pe o fostă studentă am rugat-o</u>
<u>să mă ajute.</u> |
| b) <u>Pe ceilalți studenți am</u>
<u>trimis la plimbare.</u> | b') <u>Pe ceilalți studenți i-am</u>
<u>trimis la plimbare.</u> |
| c) ? <u>Pe cîțiva studenți am</u>
<u>ajutat cu drag.</u> | c') <u>Pe cîțiva studenți i-am ajutat</u>
<u>cu drag.</u> |

Let us turn now to pronominal preverbal DOs.

- | | |
|--|--|
| (64 a) <u>Ceva important caut.</u> | a') \bar{x} <u>Ceva important il caut.</u> |
| b) <u>Nimic n-a lăudat cînd a</u>
<u>fost la noi.</u> | b') \bar{x} <u>Nimic nu l-a lăudat cînd</u>
<u>a fost la noi.</u> |
| c) <u>Orice cumpăr.</u> | c') \bar{x} <u>Orice il cumpăr.</u> |
| d) ? <u>Cîteva/multe/? puține</u>
<u>am găsit în pod.</u> | d') \bar{x} <u>Cîteva/multe/puține le-am</u>
<u>găsit în pod.</u> |
| e) <u>Pe cineva de la minister.</u> | e') \bar{x} <u>Pe cineva de la minister</u>
<u>il caut.</u> |
| f) <u>Pē oricine ajut cu plă-</u>
<u>cere.</u> | f') <u>Pē oricine l-ajut cu plă-</u>
<u>cere.</u> |
| g) \bar{x} <u>Toată am cumpărat.</u> | g') <u>Toată am cumpărat-o.</u> |
| h) \bar{x} <u>Pe toți am poftit.</u> | h') <u>Pe toți l-am poftit.</u> |
| i) \bar{x} <u>Pe unii/alții am scutit</u>
<u>de examen.</u> | i') <u>Pe unii/alții l-am scutit</u>
<u>de examen.</u> |
| j) \bar{x} <u>Pe acesta/celălalt vreau</u> | j') <u>Pe acesta/celălalt il vreau</u> |
| k) \bar{x} <u>Pe al meu am pus în</u>
<u>geantă.</u> | k') <u>Pe al meu l-am pu în</u>
<u>geantă.</u> |
| l) \bar{x} <u>Pe el am ajutat.</u> | l') <u>Pe el l-am ajutat.</u> |

The examples in (64) behave as expected under topicalization, more DOs are reduplicated. DOR is obligatory for all definite pronouns, optional, even preferable for some indefinites, and it remains impossible for some \bar{x} (-pe), \bar{x} [-Def] \bar{x} pronouns. Differences between full NP_s and pronominal NP_s with respect to DOR show the relevance of the feature \bar{x} [+ Pro], introduced by the noun deletion transformation.

We conclude that \bar{x} [+ Definite] may be included in the grammar of English and Romanian, as a syntactic feature inherent or contextually introduced by transformations.

It is important now to see whether wh-pronouns are syntactically definite or indefinite.

2.8.7. Katz-Postal [1964 : 93] assert that interrogative pronouns are indefinite. One argument they mention is the fact

the only $\left[- \text{Def} \right]$ interrogative pronoun is excluded from WHCs and NWHCs.

- (70) a) Noah inherited a small factory, $\left\{ \begin{array}{l} \text{which} \\ \text{what} \end{array} \right\}$ was nearly bankrupt. $\left[\text{V/R} . 19 \right]$
 b) Time is in the human mind, $\left\{ \begin{array}{l} \text{which} \\ \text{what} \end{array} \right\}$ expects, considers, and remembers. $\left[\text{R-354} \right]$

Consequently, relative pronouns used in dependent RCs are assumed to be $\left[+ \text{Def} \right]$. Another proof of the definiteness of relative pronouns is that they cannot be used to relativize the logical subject of a there is sentence, as the latter is normally indefinite. Compare :

- (71) Who was there to meet at the party ? $\left[\text{Culio} - 193 \right]$
 \neq I knew all of the people who there were to meet at the party. $\left[\text{Culio} - 193 \right]$

We postulate a Constituent Definitization Transformation, which introduces the feature $\left[+ \text{Def} \right]$ under the determiner of the common nominal in the RC. The rule is given below.

- (72) Constituent Definitization Transformation $\left[= \text{C D T} \right]$
 Structural Description.

Nom	vbl _n	s	X	NP	X	$\left\{ \begin{array}{l} +\text{wh} \\ -\text{Def} \end{array} \right\}$	DET	Nom	NP	X	S	X
-----	------------------	---	---	----	---	---	-----	-----	----	---	---	---

1 2 3 4 5 6 7 8

Change : Replace $\left[- \text{Def} \right]$ in 5 by $\left[+ \text{Def} \right]$

2.8.8. In much the same way, it can be shown that in Romanian, interrogative cine, ce are $\left[- \text{Def} \right]$, while interrogative care is $\left[+ \text{Def} \right]$. Thus notice that although interrogative constituents are in preverbal position, yet with ce, DOR does not occur, while with cine, which is $\left[+ \text{pe} \right]$, DOR is only optional, and rather unusual ; remember that DOR was obligatory for $\left[+ \text{Def} \right]$ pronouns.

- (73) a) Pe cine ai întâlnit a') ? Pe cine l-ai întâlnit
acolo ? acolo ?
 b) Ce ai găsit în auto ? b') \neq Ce l-ai găsit în auto ?

Care is inherently [+ Def], it implies selection or identification out of a known range, explicitly or implicitly mentioned. Thus according to Gabrea [1972 : 128], "interrogativul care este anaforic deoarece deşi întreabă despre un obiect necunoscut, obiectul este luat dintr-o colectivitate cunoscută". As expected : care must be resumed.

- (74) a) *Pe care ai cumpărat ? a) Pe care l-ai cumpărat ?

Notice also the following contrasts :

- (75) a) Si acum spune-mi, pe cine iubeşti ? Pe nimeni.
 b) Si acum spune-mi, pe cine iubeşti ? Pe nici unul (din ei)
 c) Si acum spune-mi, pe care-l iubeşti ? *Pe nimeni.
 d) Si acum spune-mi, pe care-l iubeşti ? Pe nici unul (din ei)

Relative pronouns used in dependent RCs are [+ Def]. Care always produces DOR.

- (76) a) Acum cică era odată un a) *Acum cică era odată un
rus pe care îl chema Ivan. [C-119] rus pe care chema Ivan.

It is interesting that ce is optionally reduplicated in RCs, although DOR is infrequent.

- (77) a) Importanţa ce o are această descoperire nu poate fi
subliniată îndeajuns. [N : 24]
 (78) b) ... apărat de prestigiul ce, pe drept sau pe nedrept îl
are în opinia populară. [N : 24]
 c) ... căci moşneagul ce priveşti, nu e om de rând... [E :

To account for the different behaviour of relative ce from interrogative ce, we assume that the CDT is part of the Romanian grammar as well [also, see MM, 1977 : 10]. As a matter of fact, in both languages, this transformation reflects the anaphoric relation binding the antecedent and the relative pronoun, an anaphoric relation which is guaranteed by the fact that the antecedent and the relative term have the same variable index.

Cine cannot be inserted in a matrix which is $\begin{bmatrix} + \text{wh} \\ + \text{Def} \end{bmatrix}$ so that it will not occur in dependent RCs.

(79) Urîtul din ce-i făcut ?

Din omul $\left\{ \begin{array}{l} \text{care} \\ \text{x cine} \end{array} \right\}$ -i tăcut

[Od : 18]

Notice that in this framework, at DS level we may have both $\left[\begin{array}{l} +wh \\ +Def \end{array} \right]$ and $\left[\begin{array}{l} +wh \\ -Def \end{array} \right]$ matrices ; the only requirement is that if a dependent relative clause is generated, then $\left[-Def \right]$ is replaced by $\left[+Def \right]$ by the CDT. If the matrix is $\left[\begin{array}{l} +wh \\ +Def \end{array} \right]$ (i.e. in the case of pronouns like care (which), the CDT does not apply $\left[\right]$ its structural description , $\left[\begin{array}{l} +wh \\ -Def \end{array} \right]$, is not met $\left. \right]$.

The function of the CDT is to emphasize the role of an antecedent expressed in the surface structure. It will be seen later on, that in order to account for Romanian independent relative clauses it will be necessary to subcategorize relative pronouns according to the feature $\left[\begin{array}{l} + \\ CDT \end{array} \right]$.

2.8.9. The feature of Person is also part of the feature specification of relative pronouns. In our examples, we do not take into account this feature.

Notes

1. Among the traditional grammarians that we have studied, Poutsma is the only one who notices the existence of stacked relatives, when he writes that "a restrictive clause may have for its antecedent another restrictive clause with its antecedent; e.g. Is there anything you want that you have not ? [v. I p.640].

2. As expected, proper names recategorized as common can be followed by RRCs : e.g. El este un Euphorian care stie peste ce zboară. [Nc - 124].

3. There are There - insertions sentences with definite subjects e.g. There is the disagreement about factives [Ross 1974 : 576]. For a discussion of the syntactic properties of the various types of There - insertion sentences see Ross [1974].

II. Translating into intentional logic - As mentioned in the first part, in the CP framework, translating into IL is basically viewed as an operation of translating deep structures into IL. The main aspects of this translation relation are the following : a) a function g from the set of syntactic categories (i.e. the set of category indices figuring as non-terminal nodes) into the set of logical types ; b) a function j whose domain is the set of lexical items in the deep structure syntax. The value of j for some lexical item that is a member of category is a meaningful expression (not necessarily basic) of the logical type $g(j)$; c) for every syntactic operation in the deep structure syntax, there is a corresponding (set of) operation(s) in the logic. Furthermore, for each phrase structure rule there is a corresponding (complex of) rule(s) in the logic, consisting of a corresponding (complex of) operation(s) and corresponding category indices (according to g).

2.1. The following new categories have been introduced so far : relative determiner $\bar{\text{Det}}_{wh}$, relative term $\bar{\text{NP}}_{wh} \bar{\text{ACN}}$, relative clause $\bar{\text{ACN}}$; their types are given in the chart below. For comparison, interrogative determiners, terms and clauses have also been listed.

Syntactic category

Semantic type

$\bar{\text{ACN}}$	$g(\bar{\text{ACN}}) = \langle \langle s, g(\text{Nom}) \rangle, \langle g(\text{Nom}) \rangle \rangle = \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle s, e \rangle, t \rangle \rangle$
$\bar{\text{NP}}_{wh} \bar{\text{ACN}}$	$g(\bar{\text{NP}}_{wh} \bar{\text{ACN}}) = \langle \langle s, g(t) \rangle, \langle g(\bar{\text{ACN}}) \rangle \rangle = \langle \langle s, t \rangle, \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle s, e \rangle, t \rangle \rangle \rangle$
$\bar{\text{Det}}_{wh}$	$g(\bar{\text{Det}}_{wh}) = \langle \langle s, g(\text{Nom}) \rangle, \langle g(\bar{\text{NP}}_{wh} \bar{\text{ACN}}) \rangle \rangle = \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle s, t \rangle, \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle s, e \rangle, t \rangle \rangle \rangle \rangle$
BQ	$g(\text{BQ}) = \langle \langle s, t \rangle, t \rangle$
$\bar{\text{NP}}_{wh} \text{BQ}$	$g(\bar{\text{NP}}_{wh} \text{BQ}) = \langle \langle s, g(t) \rangle, \langle g(\text{BQ}) \rangle \rangle = \langle \langle s, t \rangle, \langle \langle s, t \rangle, t \rangle \rangle$
$\bar{\text{Det}}_{wh} \text{BQ}$	$g(\bar{\text{Det}}_{wh} \text{BQ}) = \langle \langle s, g(\text{Nom}) \rangle, \langle g(\bar{\text{NP}}_{wh} \text{BQ}) \rangle \rangle = \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle \langle s, t \rangle, \langle \langle s, t \rangle, t \rangle \rangle \rangle \rangle$

2.2. Translation rules.

2.2.1. Basic rules.

$$\llbracket +wh \rrbracket_{\text{Det}_{wh}} \Rightarrow \hat{Q} \hat{P} \hat{x} \llbracket Q\{x\} \wedge P\{x\} \rrbracket$$

$$\text{every} \Rightarrow \text{Det} \Rightarrow \hat{Q} \hat{P} \wedge x \llbracket Q\{x\} \rightarrow P\{x\} \rrbracket$$

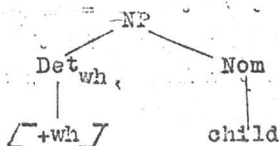
2.2.2. Rules corresponding to phrase structure rules.

T 5b (relative term formation)

$$\begin{array}{c} \text{T 5b} \\ \text{NP} \\ \swarrow \quad \searrow \\ \text{Det}_{wh} \quad \text{Nom} \end{array} \quad F_1(\text{Det}', \text{Nom}') \text{ where} \\ F_1(\text{Det}', \text{Nom}') = \text{Det}'(\wedge \text{Nom}')$$

T 5b is to be read as follows. If $\llbracket \text{Det}_{wh} \rrbracket$ and $\llbracket \text{Nom} \rrbracket$ are trees rooted by Det, Nom, and are immediately dominated by a node NP_{wh}, and if the trees $\llbracket \text{Det}_{wh} \rrbracket$ and $\llbracket \text{Nom} \rrbracket$ translate into $\llbracket \text{Det}' \rrbracket$ $\llbracket \text{Nom}' \rrbracket$, then the tree NP_{wh} translates as $F_1(\text{Det}', \text{Nom}')$, where $F_1(\text{Det}', \text{Nom}') = \text{Det}'(\wedge \text{Nom}')$

e.g.



$$1. \text{child} \Rightarrow \text{child}'$$

$$2. \text{which} \Rightarrow \hat{Q} \hat{P} \hat{x} \llbracket Q\{x\} \wedge P\{x\} \rrbracket$$

$$3. \text{which child} \Rightarrow \hat{Q} \hat{P} \hat{x} \llbracket Q\{x\} \wedge P\{x\} \rrbracket (\wedge \text{child}') =$$

T 5b

$$\rightarrow \hat{P}x \llbracket \wedge \text{child}'\{x\} \wedge P\{x\} \rrbracket$$

Abstraction Application

$$\rightarrow \hat{P}x \llbracket \text{child}'(x) \wedge P\{x\} \rrbracket$$

Brace Convention, Down-Up Cancellation

T 5b is the rule that translates all quantifier phrases:

$$\begin{array}{c} \text{e.g.} \\ \text{NP} \\ \swarrow \quad \searrow \\ \text{Det} \quad \text{Nom} \\ \text{every} \quad \text{book} \end{array} \quad F_1(\text{Det}', \text{Nom}') = \text{Det}'(\text{Nom}')$$

$$1. \text{book} \Rightarrow \text{book}'$$

$$2. \text{every} \Rightarrow \hat{Q} \hat{P} \wedge x \llbracket Q\{x\} \rightarrow P\{x\} \rrbracket$$

$$3. \text{every book} \Rightarrow \hat{Q} \hat{P} \wedge x \llbracket Q\{x\} \rightarrow P\{x\} \rrbracket (\wedge \text{book}')$$

T 5b

$$\hat{P} \wedge x \llbracket \wedge \text{book}'\{x\} \rightarrow P\{x\} \rrbracket$$

Abstraction Application

$$\hat{P} \wedge x \llbracket \text{book}'(x) \rightarrow P\{x\} \rrbracket$$

Brace Convention, Down-Up Cancellation

II. Translating into intensional logic - As mentioned in the first part, in the CP framework, translating into IL is basically viewed as an operation of translating deep structures into IL. The main aspects of this translation relation are the following : a) a function g from the set of syntactic categories (i.e. the set of category indices figuring as non-terminal nodes) into the set of logical types ; b) a function j whose domain is the set of lexical items in the deep structure syntax. The value of j for some lexical item that is a member of category is a meaningful expression (not necessarily basic) of the logical type $g(\bar{c})$; c) for every syntactic operation in the deep structure syntax, there is a corresponding (set of) operation(s) in the logic. Furthermore, for each phrase structure rule there is a corresponding (complex of) rule(s) in the logic, consisting of a corresponding (complex of) operation(s) and corresponding category indices (according to g).

2.1. The following new categories have been introduced so far : relative determiner $\bar{c} = \text{Det}_{wh}$, relative term $\bar{c} = \text{NP}_{wh} \text{ACN}$, relative clause $\bar{c} = \text{ACN}$; their types are given in the chart below. For comparison, interrogative determiners, terms and clauses have also been listed.

Syntactic category

Semantic type

ACN	$g(\text{ACN}) = \langle \langle s, g(\text{Nom}) \rangle, \langle g(\text{Nom}) \rangle \rangle = \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle s, e \rangle, t \rangle \rangle$
$\text{NP}_{wh} \text{ACN}$	$g(\text{NP}_{wh} \text{ACN}) = \langle \langle s, g(t) \rangle, \langle g(\text{ACN}) \rangle \rangle = \langle \langle s, t \rangle, \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle s, e \rangle, t \rangle \rangle \rangle$
Det_{wh}	$g(\text{Det}_{wh}) = \langle \langle s, g(\text{Nom}) \rangle, \langle g(\text{NP}_{wh} \text{ACN}) \rangle \rangle = \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle s, t \rangle, \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle s, e \rangle, t \rangle \rangle \rangle \rangle$
BQ	$g(\text{BQ}) = \langle \langle s, t \rangle, t \rangle$
$\text{NP}_{wh} \text{BQ}$	$g(\text{NP}_{wh} \text{BQ}) = \langle \langle s, g(t) \rangle, \langle g(\text{BQ}) \rangle \rangle = \langle \langle s, t \rangle, \langle \langle s, t \rangle, t \rangle \rangle$
$\text{Det}_{wh} \text{BQ}$	$g(\text{Det}_{wh} \text{BQ}) = \langle \langle s, g(\text{Nom}) \rangle, \langle g(\text{NP}_{wh} \text{BQ}) \rangle \rangle = \langle \langle s, \langle \langle s, e \rangle, t \rangle \rangle, \langle \langle \langle s, t \rangle, \langle \langle s, t \rangle, t \rangle \rangle \rangle \rangle$

6. $\rightarrow \hat{P}\hat{x}\hat{j}\{ (^{\wedge}\text{see}' (\hat{P}\hat{P}\{x_0\})) \} \rightarrow$
 7. $\rightarrow (^{\wedge}\text{see}' (\hat{P}\hat{P}\{x_0\})) \{ ^{\wedge}j \} \rightarrow$ Superstar Definition
 8. $\rightarrow \text{see}' (\hat{P}\hat{P}\{x_0\}) (^{\wedge}j) \rightarrow$ Abstraction Application
 9. $\rightarrow \text{see}' (^{\wedge}j, \hat{P}\hat{P}\{x_0\})$ Brace Convention, Down-Up-Cancellation
 10. $\int + \text{wh} \int_{\text{Det}} (\text{which}) \Rightarrow \hat{Q}\hat{P} \hat{x} [\hat{Q}\{x\} \wedge P\{x\}]$ Relation Notation
 11. $\text{man} \Rightarrow \text{man}'$
 12. $\text{which man} \Rightarrow \hat{Q}\hat{P} \hat{x} [\hat{Q}\{x\} \wedge P\{x\}] (^{\wedge}\text{man}') \rightarrow$
 13. $\rightarrow \hat{P} \hat{x} [(^{\wedge}\text{man}'(x) \wedge P\{x\})]$ T 5b
 14. $\rightarrow \hat{P} \hat{x} [\text{man}'(x) \wedge P\{x\}]$ Abstraction Application, Brace Convention
 15. $\text{which man } x_0 \text{ John had seen him}_0 \Rightarrow$ Down-Up Cancellation
 16. $\hat{P} \hat{x} [\text{man}'(x) \wedge P\{x\}] (\hat{x}_0 \text{ see}' (^{\wedge}j, \hat{P}\hat{P}\{x_0\})) \rightarrow$ T 11a
 17. $\rightarrow \hat{x} [\text{man}'(x) \wedge \hat{x}_0 \text{ see}' (^{\wedge}j, \hat{P}\hat{P}\{x_0\}) \{x\}] \rightarrow$ Abstraction Application
 18. $\rightarrow \hat{x} [\text{man}'(x) \wedge (^{\wedge}\hat{x}_0 \text{ see}' (^{\wedge}j, \hat{P}\hat{P}\{x\})) (x)] \rightarrow$ Brace Convention
 19. $\text{man } x_0 \text{ which man } x_0 \text{ John had seen him}_0 \Rightarrow$ Down-Up Cancellation, Abstraction Application
 20. $\hat{y} [\text{man}'(y) \wedge \hat{x} [\text{man}'(x) \wedge \text{see}' (j, \hat{P}\hat{P}\{x\}) \{y\}]] \rightarrow$ T 8b
 21. $\rightarrow \hat{y} [\text{man}'(y) \wedge [\text{man}'(y) \wedge \text{see}' (^{\wedge}j, \hat{P}\hat{P}\{y\})]] \rightarrow$ Abstraction Application
 22. $\rightarrow \hat{y} [\text{man}'(y) \wedge \text{see}' (^{\wedge}j, \hat{P}\hat{P}\{y\})] \rightarrow$ Elimination of Redundant Terms
- Remark : We notice a certain redundancy in step 20, which is a consequence of the repetition of the same nominal in the matrix and in the relative clause. This redundancy can be eliminated in virtue of a tautology like $\Box p \wedge p \leftrightarrow p$. Syntactically, the redundant nominal is eliminated by Noun Deletion (in the relative). This redundancy can be made use of by letting one of the identical nominal positions be filled by a common noun variable ($\Delta_{\langle s, e \rangle t}$). In that case, a meta-linguistic convention might be added specifying that a variable of type $\Delta_{\langle s, e \rangle t}$ is interpreted /translated like any other nominal expression indexed by the same variable as Δ_0 .

22. $\rightarrow \hat{y} \sqsubset \text{man}'(y) \wedge P P \{y\} \{z \text{ see}'_{\#} (\hat{y}j, \hat{y}z)\} \sqsubset \rightarrow$
 Extensional Theorem
23. $\rightarrow \hat{y} \sqsubset \text{man}'(y) \wedge \hat{z} \text{ see}'_{\#} (j, \hat{y}z) \{y\} \sqsubset \rightarrow$
 Brace Convention, Down-Up Cancellation, Abstraction Application
24. $\rightarrow \hat{y} \sqsubset \text{man}'(y) \wedge \hat{z} \text{ see}'_{\#} (j, \hat{y}z) (y) \sqsubset \rightarrow$
 Brace Convention
25. $\rightarrow \hat{y} \sqsubset \text{man}'(y) \wedge \text{see}'_{\#} (j, \hat{y}y)$
 Down-Up Cancellation, Abstraction Application
26. $\rightarrow a \Rightarrow \hat{Q} \hat{R} Vx \sqsubset Q\{x\} \wedge R\{x\} \sqsubset$
27. $a \text{ man}' x_0 \text{ which man}' x_0 \text{ John had seen him}_0 \Rightarrow$
 $\Rightarrow \hat{Q} \hat{R} Vx \sqsubset Q\{x\} \wedge R\{x\} \sqsubset (\hat{y} \text{ man}'(y) \wedge \text{see}'_{\#} (j, \hat{y}y))$
 T 5b
28. $\rightarrow \hat{R} Vx \sqsubset \hat{y} \text{ man}'(y) \wedge \text{see}'_{\#} (j, \hat{y}y) \{x\} \wedge R\{x\} \sqsubset \rightarrow$
 Abstraction Application
29. $\rightarrow \hat{R} Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, x) \wedge R\{x\} \sqsubset$
 Brace Convention, Down-Up Cancellation, Abstraction Application
30. identified \Rightarrow identify'
31. identified $a \text{ man}' x_0 \text{ which man}' x_0 \text{ he had seen him}_0$
 \Rightarrow identify' $(\hat{R} Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, \hat{y}x) \wedge R\{x\} \sqsubset)$
 T 2e
32. John identified a man x_0 which man x_0 he had seen him
 $\Rightarrow j^{\#} (\text{identify}' (\hat{R} Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, \hat{y}x) \wedge R\{x\} \sqsubset))$
 T 1 f
33. $\rightarrow \hat{P} P \{ \hat{y}j \} (\text{identify}' (\hat{R} Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, x) \wedge R\{x\} \sqsubset))$
 Superstar Definition
34. $\rightarrow \hat{y} \text{ identify}' (\hat{R} Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, \hat{y}x) \wedge R\{x\} \sqsubset) (\hat{y}j) \rightarrow$
 Abstraction Application, Brace Convention
35. $\rightarrow \text{identify}' (\hat{y}j, \hat{R} Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, \hat{y}x) \wedge R\{x\} \sqsubset)$
 Down-Up Cancellation, Relation Notation
36. $\rightarrow \hat{R} Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, \hat{y}x) \wedge R\{x\} \sqsubset \{ \hat{y} \text{ identify}'_{\#} (\hat{y}j, \hat{y}y) \}$
 Extensional Theorem
37. $\rightarrow \hat{y} \hat{R} Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, \hat{y}x) \wedge R\{x\} \sqsubset \{ \hat{y} \text{ identify}'_{\#} (j, \hat{y}y) \}$
 Brace Convention
38. $\rightarrow Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, \hat{y}x) \wedge \hat{y} \text{ identify}'_{\#} (j, \hat{y}y) (x) \rightarrow$
 Abstraction Application, Brace Convention
39. $\rightarrow Vx \sqsubset \text{man}'(x) \wedge \text{see}'_{\#} (j, \hat{y}x) \wedge \text{identify}'_{\#} (j, \hat{y}x) \sqsubset \rightarrow$
 Down-Up Cancellation, Abstraction Application

To make the next step we resort to the following logical consequence of Montague's MP 2, PTQ : 263 ; taken from Partee, 1975 : 283 :

$$\text{MP 2'} \quad \square \sqsubset \text{man}'(x) \leftrightarrow \text{man}'(x) \wedge V u \sqsubset x = u \sqsubset$$

$$40. \quad Vx \sqsubset \text{man}'(x) \quad V u \sqsubset x = u \sqsubset \wedge \text{see}'_{\#} (j, x) \wedge \text{identify}'_{\#} (j, \hat{y}x)$$

MP 2'

41. $\forall x \forall u [\text{man}'_x(x) \wedge [x = u] \wedge \text{see}'_x(j, x) \wedge \text{identify}'_x(j, x)]$
 (a law of logic)
42. $\forall x \forall u [\text{man}'_x(u) \wedge [x = u] \wedge \text{see}'_x(j, u) \wedge \text{identify}'_x(j, u)]$
 Substitution of Equivalents
43. $\forall u [\text{man}'_x(u) \wedge \text{see}'_x(j, u) \wedge \text{identify}'_x(j, u)]$
 Elimination of Vacuous Parts

Due to the fact that the two verbs identify and see can be interpreted as extensional predicates, at least in certain contexts, the whole construction is reducible to a first - order calculus expression.

B. Restrictive Relative Clauses. The transformations.

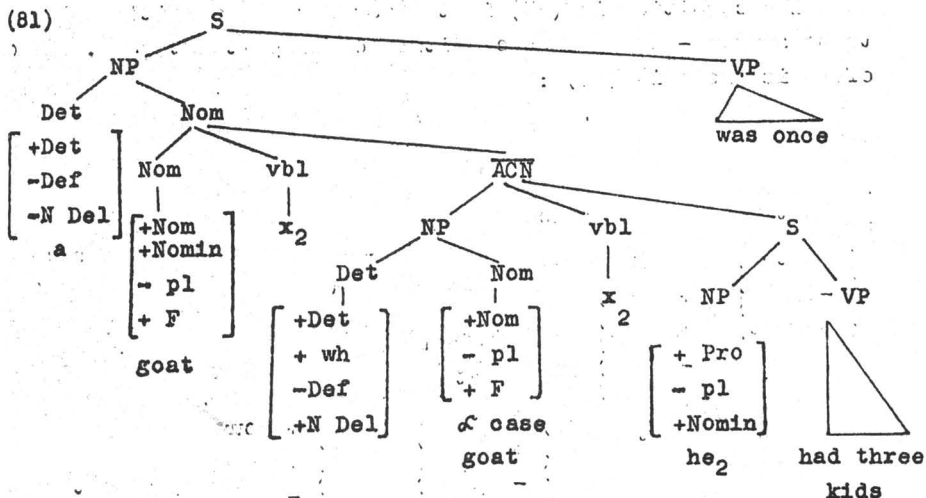
1. It is the purpose of this section to show how the structures presented in II.A become surface structures of English and Romanian. Several of the necessary transformations have already been introduced and justified : Relative Binding, Constituent Definitization, Noun Deletion, all of them common to English and Romanian.

The only major rule to be added is wh-Movement or Relative Clause Formation. Furthermore, the relativization of genitives in both languages and of direct and indirect objects in Romanian, requires the introduction of several minor rules.

1.1.1. We first analyse in detail an instance of relativization in subject position.

(80) a. Era odată o capră care avea trei iezi.

b. Once there was a goat who had three kids.



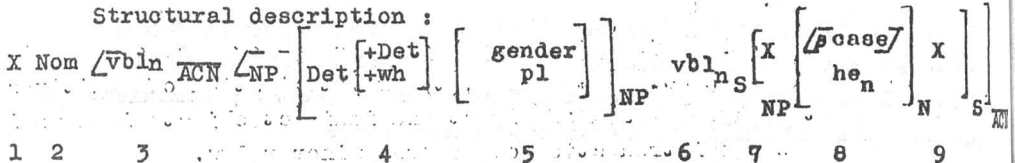
We analyse the English version of this sentence. The Romanian sentence would differ only in the feature specification of the relative pronoun care, which happens to be inherently [+Def].

Structure (81) is the input to Relative Binding. The introduction of this rule is motivated by the desire of treating all NPs, (terms) ordinary, relative, interrogative, in the same

way: all of them may undergo lowering rules. Relative terms are peculiar only in that Relative Binding applies only at sentence level [and not, say, at NP level]. A more detailed justification of the rule was given in I.B, where the rule was stated in a PTQ grammar. In (83), the rule is stated in Cooper - Syntax.

(83) Relative Binding [= R B]

Structural description :



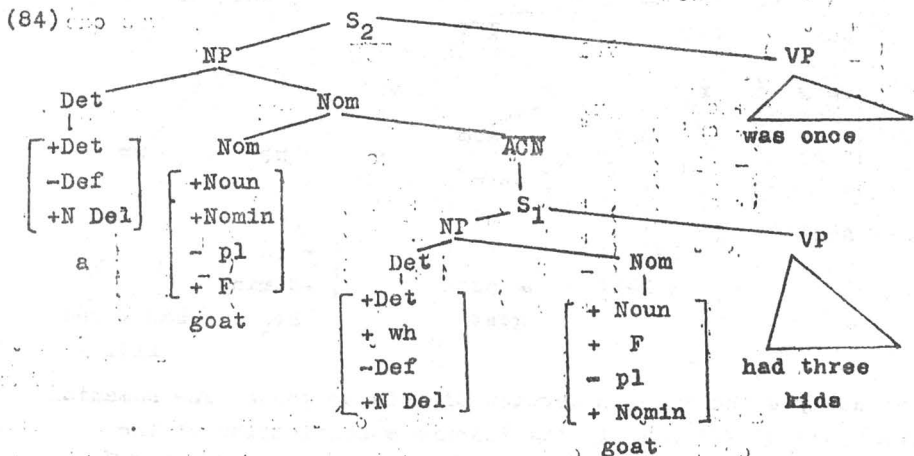
Condition : 3 = 6.

Change : a) Insert [β case] in 5.

b) Replace 8 by [1, 2] NP.

c) Erase 6 and 3.

The condition in (83) is the coreference condition which appears to be a well-formedness condition on deep structures. The output of RB is shown in (84) :

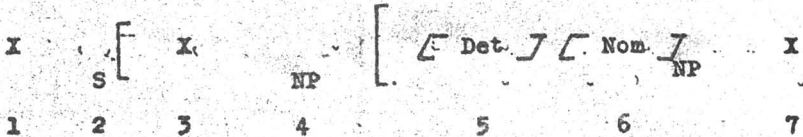


As the determiner of the wh - NP is [- Def], it is possible to apply the CDT replacing [- Def] by [+ Def] and inserting [+ CDT]. (84) meets the structure description for wh - Movement or Relative Clause Formation - a transformation that moves the relative NP and Chomsky-adjoins

it to the sentence that dominates it :

(85) Relative Clause Formation [= RCF] or wh - Movement.

Structural Description :



Conditions : a) Det in 5 dominates [+ wh].

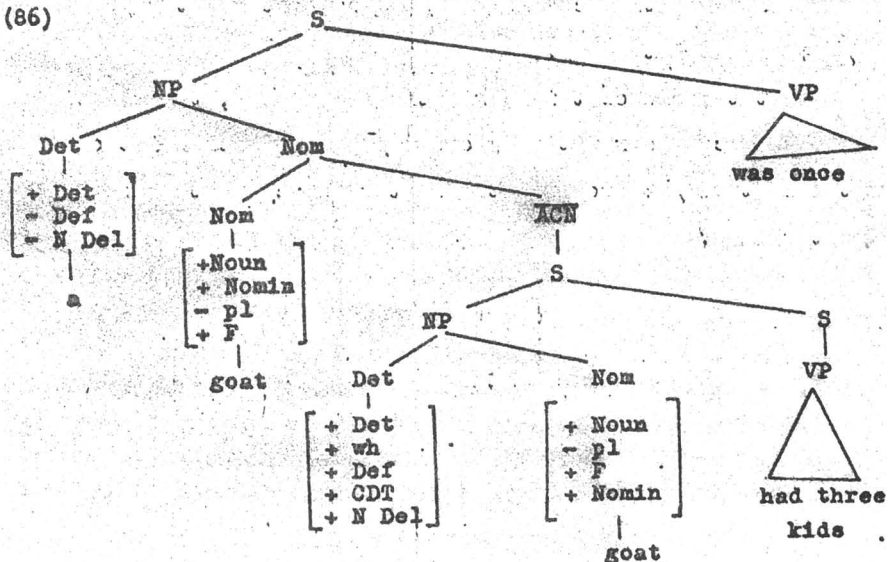
b) This transformation is subject to constraints discussed in Ross (1967).

c) The rule is obligatory.

Structural change : Chomsky-adjoin 4 (i.e. 5 + 6) as left daughter of 2.

As stated in (85), the rule can only apply after RB, since before RB has applied the relative NP is dominated by ACN and the SD for RCF is not met.

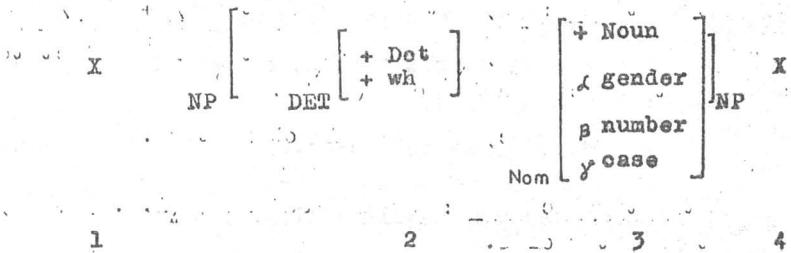
After RCF, PM (84) becomes (86) :



Structure (86) is subject to Noun Deletion. Before Noun Deletion, the nominal transfers the relevant grammatical information onto the determiner, by means of an Agreement Transformation.

This transformation copies the number, gender, case of the nominal on the determiner.

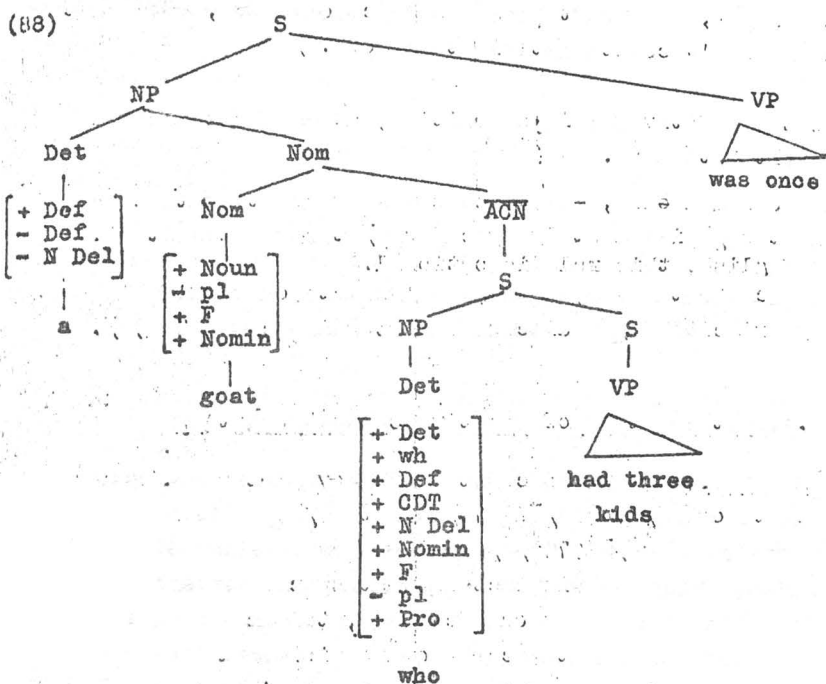
(87) Agreement, Structural Description :



Change : a) copy [α gender], [β number], [γ case],
under DET in 2.

Noun Deletion can now be applied if the determiner is $\left[\begin{smallmatrix} \text{max} \\ \text{min} \end{smallmatrix} \right] + \text{Noun Deletion} \right]$.

At the end of this derivational process, the relative NP has become a relative pronoun. [Noun Deletion introduces the feature [+ Pro] in the feature specification of the determiner].



The feature matrix in (88) is detailed enough to uniquely identify the form who inserted by means of the second lexical insertion process, which takes places when all the rules of the transformational component have applied. Relative pronouns have multiple roles in surface structure : they stand proxies for the deleted nominals whose function in the RC they indicate. At the same time, they are anaphorical devices, sending back to their antecedents. They also signal subordination, their position in the final derived phrase marker being that of complementizers or conjunctions.

The derivation of RRCs involves the following rules : Relative Binding, Constituent Definitization and wh - Movement [these rules are intrinsically ordered], Agreement and Noun Deletion. Agreement is intrinsically ordered after RB, but so far, it appears that it might precede or follow RCF.

The formulation of wh - Movement should be more complex, since wh - Movement may or must move other constituents in addition to the relative constituent. At least two specifications

must be made, [even though, for lack of space, we cannot discuss Ross's constraints in this work.]

- a) if the relative NP is a genitive, RCF moves the relative NP with its head.
- b) in Romanian only, - RCF moves any preposition that dominates [immediately precedes] the relative term. In English, this rule is optional.

Specifications a) and b) are aspects of Ross's Pied Piping principle [discussed in Cornilescu (1974)].

1.1.2. On the nature of Relative Clause Formation

Remark 1. RCF is a constituent movement rule. Several important works [Ross [1967], Postal [1969], Chomsky [1973], Postal [1974]] have proposed a typology of movement rules, which in fact aims at specifying certain applicability¹⁾ conditions on each type, this contributing to the narrowing down of the class of possible natural language grammars. Summarizing his own work and Ross's, Postal [1974 : 35] distinguishes the following types of movement rules :

" a) Unbounded Rules, i.e. the Wh reorderings, Topic-alization, etc.. rules which transport constituents over an unbounded number of higher clause boundaries.

b) Bounded Rules restricted to crossing constituents over a finite number n of higher clause boundaries. These are of two sub - types. (1) Raising Rules, i.e. Raising, Neg Raising, where the number n is exactly 1. Such rules move a constituent from a subordinate clause into the immediately superordinate one. (2) Clause Internal Rules, i.e., Dative Movement, Complex NP Shift, etc., where the number n is zero. Such rules rearrange constituents, without crossing them over any higher clause boundaries at all".

RCF is thus an unbounded movement rule; of particular interest is the characterization of unbounded movement rules as rules that involve essential variables [Postal (1969 : 117)] in the sense that, because they move NPs

over a structure which cannot be specified by any enumeration of constants, unbounded movement rules cannot be stated without recourse to essential syntactic variables. The variable of the third term of the SD in (85), is an essential variable. Unbounded movement rules are also called 'variable movement rules'.

[Postal, 1969 : 117].

The examples below are sufficient, we hope, to show once again that the wh - constituent crosses an essential variable.

(89) a. That is exactly the question which I expected you to ask. [v]. [P and P - 23].

a'. Chiar aceasta este intrebarea pe care mă așteptam s-o puneti. [M and P - 40].

b. These are the kind of little things, which please her ladyship, and it is a sort of attention [which I conceive of myself to be bound to pay. [v,]].
[P and P - 61].

b'. Acest gen de mici atenții este cel care îi face senioriei sale plăcere și este felul de atenții pe care mă simt a fi deosebit de obligat să-l folosesc. [M and P - 76].

(90) a. Old man Mack, [whom I've come to admire [v] tremendously, though I never met him, died in 1935.
[Bth 93].

b. 'You haven't come across that pair of shoes you said you was going to look [v] for me, have you ?
[P - 57].

c. Mrs Honour, therefore had heard the whole story of Molly's shame, which she ... had no sooner entered the apartment of her mistress, then she began to relate.
[v] in the following manner. [Pt - I - 645].

d. Căile însă pe care credeau că pot să ajungă la țintă [v] erau diferite. [M - 86].

e. ... o fracțiune de gram pe care mă prind că P.

nu ştie s-o citească [v].

The various constraints on the applicability of unbounded movement rules [e.g. Ross's constraints] can be viewed as constraints on the essential variable that the NP crosses. More recent studies [Bresnan, 1976], Bach and Horn [1976], Nijt [1976] have shown that it becomes possible to relate variable movement rules, where the essential variable is the movement path, i.e. the unspecified context crossed by the moved NP, with variable deletion rules (e.g. Gapping), where the essential variable is either the deletion path [the string connecting the controller with the deletion site] or the deleted string itself [e.g. Gapping].

From the point of view of our work this observations is of great significance because it explains why that relatives, which are based on deletion, and wh - relatives which are based on movement, obey the same set of constraints.

Given that the relativized NP crosses an unbounded number of sentence boundaries, if one accepts the cyclic principle, - and we do - one has to decide on which cycle RCF takes place. Regarding unbounded movement rules two solutions have been proposed, both consistent with the cyclic application of transformations :

a) The "successive cyclic hypothesis" [the term belongs to Postal [1972], formulated in Chomsky [1973]: on every cycle the NP is moved to the front of the clause defining that cycle, ending up in its maximally fronted position after movement on the last cycle. On each cycle the movement is obligatory. [According to Chomsky [1973] the successive cyclic hypothesis regarding unbounded movement rules follows from his more general principle of strict cyclicity [1973 : 234]. Bach and Horn [1976 : 292 - 296] provide an important number of counterexamples to the strict cyclicity principle].

b) "The higher - trigger cycle" hypothesis, which maintains ^{that} the NP constituent moves only once, when some element higher up in the tree, which triggers the movement, is reached in the cycle. In the case of RCs, the higher

trigger is the identical NP in the matrix. This second account is the usual interpretation of RCF. [e.g. Ross [1967], Stockwell [1973] etc.].

We think that the second hypothesis stands a better chance of being correct as there are important arguments which disprove the first hypothesis.

Chomsky's successive cyclic hypothesis is part of a more general theory about wh - Movement [in Chomsky [1973] "wh - Movement" refers to question formation] and hence also about RCF, a theory which makes the following claims, none of which can be maintained :

- (91) (1) Wh - Movement takes place into Comp position:
- (2) once an element has been moved into Comp position it can move further only into another Comp position.
- (3) the movements of this type occur successive cyclicly.

The first claim draws on the work of Baker [1970] and particularly Bresnan [1970]. Bresnan had argued that [[±] wh] is a complementizer and that complementizer nodes should be present in the DS [she uses the following rule adopted by Chomsky [1973], $S \rightarrow \text{Comp } S$; where $\text{Comp} \rightarrow \text{that, for, } ^\pm \text{wh}$]. She also formulates the following putative universal.

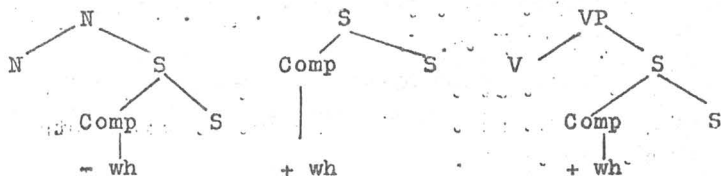
(92) The Complementizer Substitution Universal.

Only languages with clause - initial Comp permit a Comp substitution transformation [1970 : 316].

Bresnan assumes that a Comp Substitution operation takes place whenever any transformation moves a constituent over an essential variable [e.g. in the case of RCF, wh - Movement etc.].

Bresnan's universal was an elegant attempt at relating certain typological facts, mentioned in Greenberg [1963]; one such fact was that no SOV language had wh - Movement and also no SOV language had a clause - initial Comp. At the same time one understood why relative clauses with heads to the left should be similar to clauses with question particles to the left; both involved movement into a clause initial positions in the following configurations :

(93) Relative clauses Questions Embedded questions



As Bach and Horn [1976 : 291] notice : " the reason that the connection between *wh* - Movement and order type is explained by a principle like (92) was that in English and many other languages only one movement can take place per question". Thus once a *Comp* position has been filled by one element it cannot be filled by another one.

However it is now known that a number of the factual claims underlying the above general hypothesis are false.

Thus, Frantz [1973] has reported on the Panoan language Sharanahua, which is a verb final language, and does not have clause initial complementizers but which still has *wh* - Movement.

Epée [1976] reports on Duala, a Bantu language, which has a *yes* - *no* particle, initial complementizers and *wh* - movement but the questioned constituent moved by *wh* - movement does not replace the *yes* - *no* particle or the complementizer. In direct questions the *yes* - *no* particle co-occurs with the moved constituent, in indirect questions the initial complementizer can likewise occur with the preposed *wh* - constituent.

Wachowitz [1973] has shown that in Polish several interrogative movements can take place in the same clause.

Romanian too provides evidence against the *Comp* substitution principle. It is only reasonable to believe that in examples such as the following, several constituents have been shifted by *wh* - Movement:

(94) a. Să vedem cine pe cine învinge.

a'. Let's see who beats whom.

^xLet's see who whom beats.

b. Spune-mi, în fotografia asta, cine cu cine seamănă ?

c. Cui ce-i pasă că-mi ești drag ? [Eminescu]

d. Nu mai țin minte cine ce a zis.

Thus, for many languages a descriptively adequate grammar can hardly claim that the questioned constituent is moved into Comp initial position.

The acceptance of Chomsky's second and third claim in (91) leads to descriptive and explanatory inadequacies..

Consider the effect that these claims may have on the rules of Raising and Tough Movement. If these rules are stated as usual and if claims (91.2) and (91.3) are maintained then sentences where the same NP undergoes both wh - Movement and Raising or Tough Movement cannot be generated.

(95) a. Cine părea că e obosit ?

a'. Who seemed to be tired ?

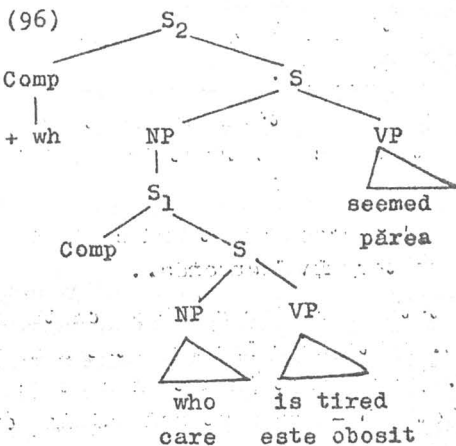
b. A comandat cărți care sînt greu de procurat.

b'. He ordered books which are difficult to obtain.

Consider the derivation of (95 a) in PM (96) and remember that Raising takes place on the main clause cycle (= S_2). Under the successive cyclic hypothesis, wh - Movement first applies, on S_1 moving the [wh] NP into the S_1 Comp initial position. As a consequence the structural description for Raising (on S_2) is destroyed. Furthermore, according to the second claim an NP moved into Comp position can only be moved into the next higher Comp position. Sentence (95 a) thus cannot be generated.

Several equally undesirable moves can be envisaged : One is to make entirely ad-hoc changes in the statements of Raising, Tough Movement.

Another alternative is to make wh - Movement optional so that it may not apply on S_1 , allowing Raising on S_2 . But this alternative would have serious drawbacks by allowing questioned constituents to appear in positions where they never do, as in (97 b).



(97) a. Who did you say that Mary claimed had won the race.

b. *You said that Mary claimed who had won the race ?

Bach and Horn [1976:296] make the subtle remark that a successive cyclic analysis of unbounded movement rules runs against

a more general principle of grammar construction, which says that "subsentes must be locally grammatical, in the sense that the subsentes formed at the end of each cycle must underlie possible grammatical sentences in their own right". Thus the cyclic application on wh - movement produces deviant sentences at the end of each cycle before the topmost as in (97 b) above.

It would also follow that the only successive cyclic applications of rules would be those in which at each (stage of the) cycle the conditions for applying the rule are met. Such is the case of Raising in (98) where both imagine and believe are Raising triggers :

(98) This claim is believed to have been imagined to be false.

In the case of English, Postal [1972] mentions one more argument against the successive cyclic principle. If the preposition moves optionally, and relativization is successive cyclic, then the preposition could be left behind at any of the intermediate sentence - initial positions, when in fact the only possibilities are that the preposition either stays in its original position or moves all the way to the front along with the NP which is moved. Here are Postal's examples :

(99) a. I believe Mary thinks John talked to someone.

- b. Max, who I believe Mary thinks John talked to.
- c. Max, to whom I believe Mary thinks John talked.
- d. *Max, who/whom I believe to Mary thinks John talked.
- e. *Max, who/whom I believe Mary thinks to John talked.

Remark 2. Our analysis of RCF confirms the generalization mentioned in Dowty [1978 : 110] that "unbounded movement transformations always correspond to a semantic operation of variable binding".

Remark 3. RCF moves the relative NP, not only the determiner (see 85), so that Noun Deletion applies after RCF. This order of application is suggested by the existence of sentences such as (100) below :

- (100) a. împăratul face un ospăț foarte mare în cinstea
nepotului său, la care ospăț au fost poftiți cei
mai străluciți oaspeți. [6 - 74]
- b. .. și după curentul vremii, care curent al vremii,
în generațiile acestea noi ducă către generalizări
pe care eu le cred pripite. [1 - 5]

Remark 4. In (85) it was assumed that the wh - constituent is Chomsky - adjoined to the relative clause node. Some evidence in favour of this assumption comes from Bresnan [1974]. She argues that the derived constituent structure of say whom she left should be as in (101), because the substring she left is a constituent. To prove this, Bresnan uses the rule of Right Node Raising, which operates only on constituents. [see Postal [1974 : 48]].

- (102) a. I can tell you the time when he left her, but I can't
tell you the reason why he left her.
- b. I can tell you the time when, but I can't tell you
the reason why, he left her.
- a'. Îți pot spune momentul când a părăsit-o, dar nu-ți
pot spune motivul pentru care a părăsit-o.

1.2. Relativization out of Direct Object position. The example considered is the Romanian :

(105) a) Si frumusetea pe care o cunoasteam străluci intens pe chipul ei. [M P : 130]

b) And the beauty I knew brightly shone on her face.

Relativization out of DO position raises two important problems : the occurrence of the preposition pe as a marker of the DO, and DOR by unstressed pronominal forms.

1.2.1. As we enter the discussion of the relative pronouns used in RRO : care, ce, cît, the feature [\pm personal] no longer helps in deciding whether the DO is [\pm pe]. With relative pronouns, the use of pe does not depend on the character of the NP, but on which specific relative pronoun is used.

Care should always be used with pe, at least this is the standard language normative rule. [We will come back to this problem].

(106) a) El a spus cuvintele acelea pe care le citeam la Iași în 1916.

"Vom fi ceea ce am fost și mai mult decît atît". [I.-48]

b) Il întrebasesm doar dacă știa că omul acela pe care ei îl umiliseră astfel murise. [M P : 86]

Ce is invariable²⁾ and it never takes pe.

(107) Ele erau ceva format din adîncimea subconștientului său, și în care se îngrămădise tot /ce dăduseră atîtea generații/. [I - 9]

Cît is only seldom used with pe, and then mainly when the antecedent is [+ Personal].

(108) a) Dar toți / pe cîți îi întreba / dădeau din umeri neștiind ce să răspundă la așa întrebare ciudată. [C : 43]

b) Lupta cu visuri cumplite, după atîtea mese cîte înghițise. [N : 30]

1.2.2. DOR also depends on which pronoun is selected. In principle, DOR should be allowed for relative pronouns because they are [+ Def] and preverbal. Indeed, we find that DOR is obligatory

for care [see (106)] and optional for, ce, cît, where DOR is influenced by the nature of the antecedent.

Thus, for ce, certain categories of "neuter"³⁾ antecedents or determiners of the antecedent make DOR unlikely or impossible, but in most contexts DOR is optional.

(109) a. Pierdu tot ce avuse / *ce-l avuse. [N : 77]

b. Pierduse toată averea ce și-o agonisise în ani de trudă.

c. Dar numai în baza datelor ce le avem nu vom putea niciodată hotărî pentru o dată sau pentru alta.

[Cal.: 43]

d. Culcarea se petrecea cu zarva ce o fac găinile pînă se așează în coteț. [Cal. : 66]

In the case of cît, DOR is more frequent for [+Personal] antecedents and possible but less frequent otherwise [see 108 above and also 110].

(110) a. De ce nu poate omul toate cîte le dorește ? [Od.: 88]

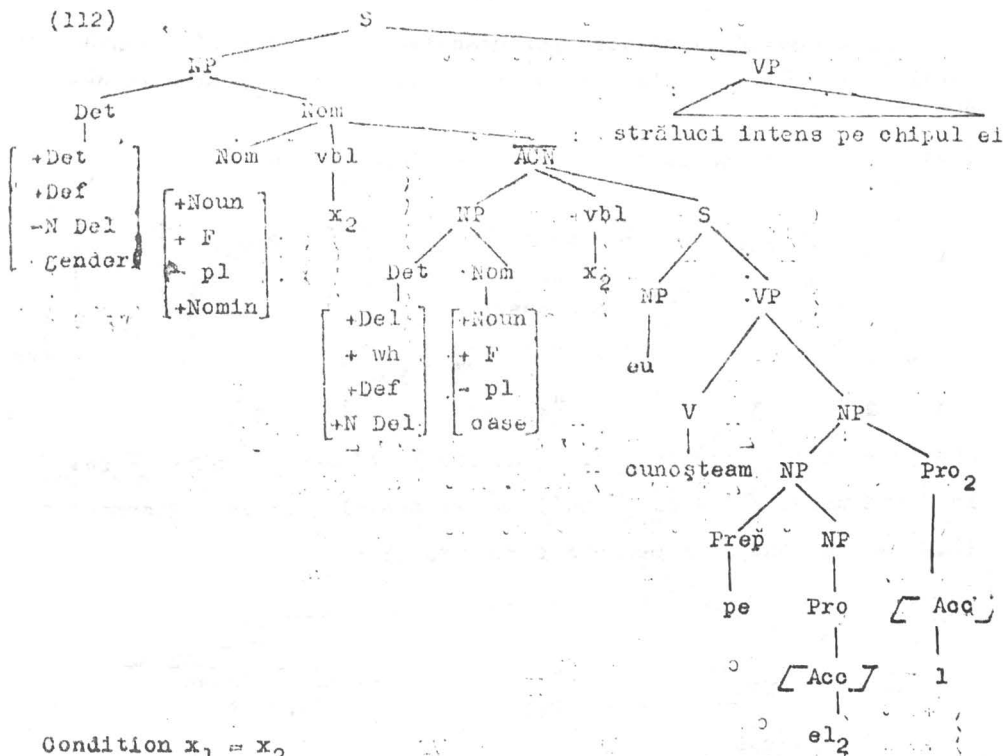
b. Ii numără în gînd pe toți oîți îi vedea și îi cunoștea. [N - 77]

1.2.3. To account for the existence of the unstressed form of the personal pronoun [Pro₂], we modify the PSRS that introduces direct object NP_s.⁴⁾

(111) $[NP]_{VP} \rightarrow \dots / NP - Pro_2$

1.2.4. The derivation of Romanian (105) is quite similar to that of the English (81) : We here indicate the main stages :

(112)



Condition $x_1 = x_2$

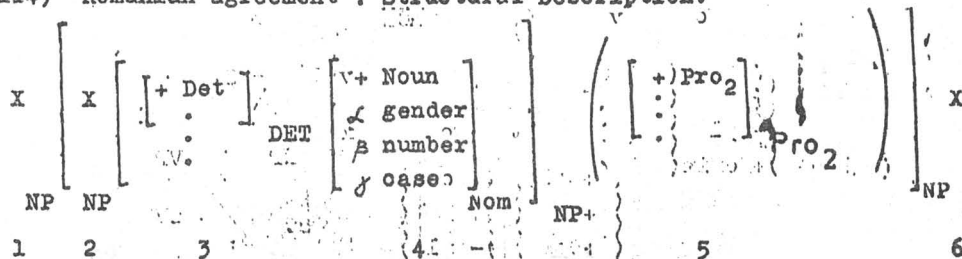
(112) is the underlying structure. Relative Binding lowers the relative NP and copies on it the case feature $\bar{[-Acc]}$. The CDT cannot apply because the relative determiner is already definite; the relative determiner will be marked $\bar{[-CDT]}$. To take care of the unstressed form Pro₂ a new transformation of Cliticization is introduced - which moves the mentioned pronominal form and attaches it under the domination of the V, usually $\bar{[but not always: o\ stiu // am\ stiut-o]}$ in preverbal position. In principle, Cliticization could apply before or after RCF. However if we accept that SVO is the normal unmarked order in Romanian, then it is more convenient to simplify the rule by stating it only once for post verbal objects as in (113). Cliticization is (intrinsically) ordered before wh-Movement because after wh-Movement its structural description is no longer met.

(113) Structural Description

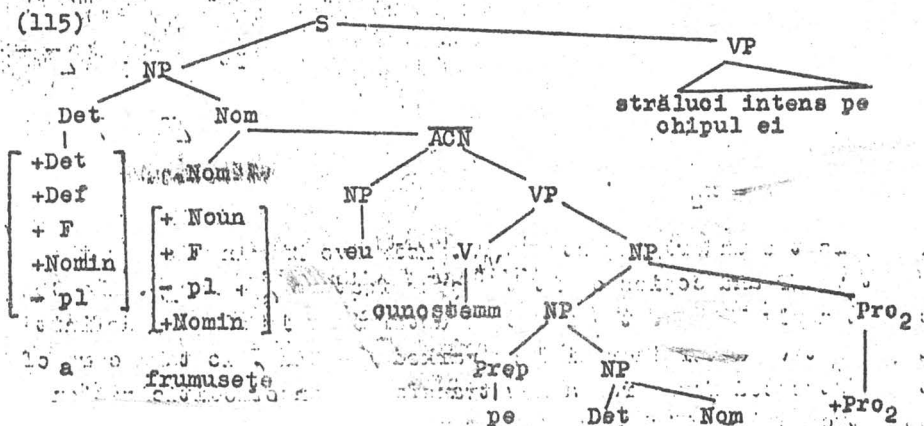
X	V	X _{NP}	NP	Pro ₂	J _{NP}	X
1	2	3	4	5		6
1	5	2	3	4		6

Agreement [formulated for Romanian as in (114)], should apply before Cliticization so that the domain of the rule in one dominating NP node :

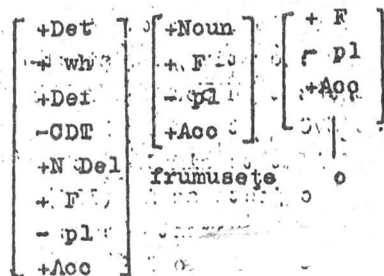
(114) Romanian Agreement : Structural Description.



Change : Copy [+ gender], [- number], [- case] under [+ Det] in 3 and under [+ Pro₂] in 5. After applying RB and Agreement to (112) we get the intermediate structure (115) :



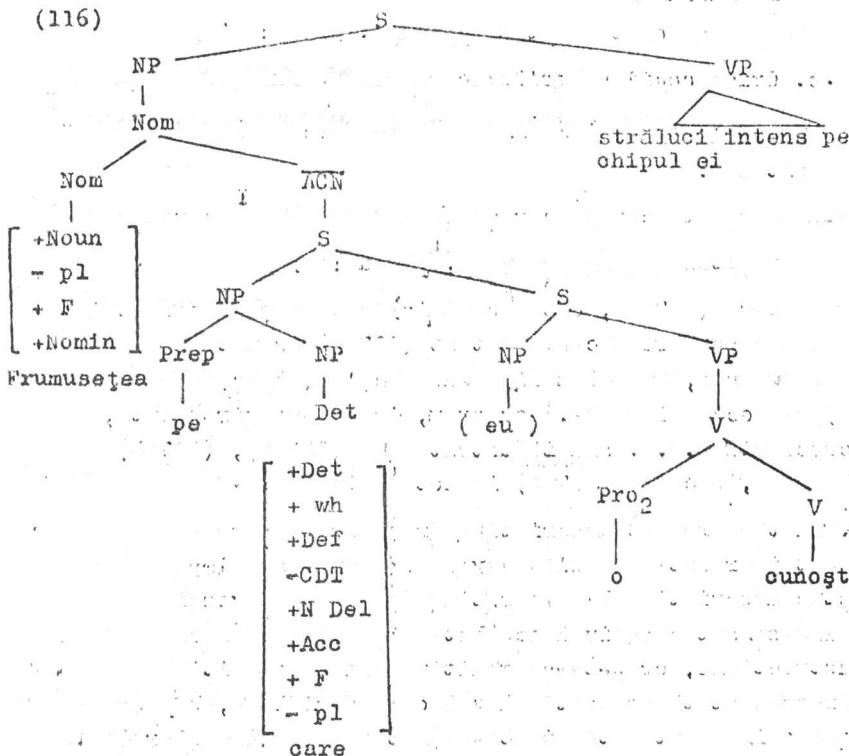
As stated above, Agreement is followed by Cliticization, wh-Movement, and Noun Deletion, yielding the final structure (116), where, given the feature specification of the relative constituent, it is only possible to insert care.



The derivation made use of the following unordered or intrinsically ordered transformations : Relative Binding, CDT, Agreement, Cliticization, wh-Movement, Noun Deletion.

Of these, Cliticization is specific to Romanian and Agreement is different from its English counterpart.

(116)



1.3.0. Relativization out of genitive (possessive) position.

In both languages, genitives move with their heads, Pied-Piping being obligatory. The derivation of genitive relative pronouns in Romanian is further complicated by the existence of two possible surface realizations :

(117) a. $\left[\text{al} + \text{relative} \right]_{\text{NP}} + \left[\text{Nom} \right] (\text{rîu ale cărui unde})$

b. $\left[\begin{array}{c} \text{Def.Art.} + \text{Nom} \\ \text{NP} \end{array} \right] + \left[\begin{array}{c} \text{relative} \\ \text{NP} \end{array} \right]$ (rfu undele cărui...)

(118) a. I cannot go to bed and make love with a man whose body
is covered with ugly scarlet blotches. [TP: 134]

b. He found himself in a sea of very still smoke
whose undulating surface was level with his eyes. / V : 767

Note : Whose is also frequently used as the genitive of which, not only of who. (118 b).

- (119) a. Biblia este o carte completă, aleasă de unul dintre
popoarele din antichitate al cărui suflet fusese su-
pus la foarte multe încercări. [I : 47]
- b. Orice comisiî membrilor cărora li se refuză dreptul de
a-şi spune liber opiniile vor lua decizii necorespun-
zătoare.
- c. La dreapta curge un rîu în undele căruia se răsfrînge
umbra tufişului de pe mal. [Od : 63]

Structure (117 b), often used in NRRCs is infrequent in RRCs, it has even been claimed that (117 b) is not possible in RRCs. However, examples like Odobescu's (119 c) show that (117 b) may occur in RRCs. Moreover, in some environments, [discussed in 1.3.2. and illustrated by (119 b), (117 b) must be used, because (117 a) is not available].

1.3.1. In the present descriptive framework, where the semantic component is relatively well developed, one may simplify the syntactic description by generating (all) genitives in the base. The semantic equivalence between genitives and have and be constructions, or between genitives and propositional NPs is expressed at the semantic level of description, by formulating meaning postulates instead of transformational rules. This approach appears to be preferable because some genitives have to be generated in the base, anyway as there is no convenient transformational source for them [Stockwell 1973 : 683-690].

Therefore in both languages we need PSRs which expand genitives. Given the position of the genitive in English and Romanian there will be two rules :

(120) a. P S 6 a English : Nom \rightarrow NP $\overline{\text{vbl}}$ Nom

b. P S 6 a Romanian : Nom \rightarrow Nom $\overline{\text{vbl}}$ NP

In both languages NP $\overline{\text{Nom}}$ is assigned the feature [+ Genitive]. Romanian also needs a supplementary rule which introduces the "genitival article".

(121) NP $\overline{\text{Nom}}$ \rightarrow Poss NP, where Poss \rightarrow al, a, ni, no

From (120 b) and (121), we get (122)

(122) Nom \rightarrow Nom vbl Poss NP.

(122) allows the generation of strings like (123).

(123) a. o casă a unui vecin.

b. Oricare / fiecare / orice / altă casă a vecinului.

c. această / aceea / cealaltă casă a vecinului.

d. casa asta / cealaltă / aceasta a vecinului / unui vecin

Poss is subject to the restriction that it cannot immediately follow the definite article.

(124) a. * casa a vecinului

b. * toate / amândouă casele ale vecinului

c. toate casele acestea ale vecinului

d. casele în stil românesc ale vecinului

Infrequently, in literary or poetic style, genitives can be shifted in prenominal position; prenominal genitives are semantically equivalent with postnominal genitives which modify nouns determined by the definite article: ale inserării umbre = umbrele inserării. Examples in (125) further support the idea that preposed genitives originate as postmodifiers of definite NPs:

(125) a. o / altă casă nouă a vecinului // * a vecinului o / altă casă nouă.

b. umbra deasă a inserării // a inserării umbră deasă.

The above mentioned facts show that, in the context of a definite article the string Poss NP may undergo different transformations:

(126) T. Poss Deletion (optional); Structural Description

X Nom Def Article Y Poss NP X
1 2 3 4 5 6 7

Change: 1. 2. 3. 4. 5. 6. 7.

Condition: Y is null.

Thus T Poss Deletion applies only if the Def Article immediately precedes Poss.

(127) T Genitive Shift (optional) Structural Description.

X [Nom Def Article] X [Poss Nom Def Article] NP NP X
 1 2 3 4 5 6 7 8

Change :

1 [5 6 7] NP 2 Ø 4 8

Remark 1. Genitive Shift applies only if the genitive constituent is definite : * ale unei înserări umbre / ale înserării umbre.

Remark 2. There may be a constituent between the genitive and its head, designated by the variable X of the SD, but not any constituent will do (post nominal determiners, for instance, are excluded).

- (128) a. inima de piatră a domnitorului // a domnitorului inimă de piatră
 b. mantia înstelată a nopții // a nopții mantie înstelată
 c. roua aceasta (binefăcătoare) a dimineții // * a dimineții rouă aceasta binefăcătoare.

Variable X [term 4], may be null and then SD (127) is a particular case of SD 126, and Genitive Shift can still apply :

- (129) din siragul prinților // dintr-al prinților sirag

The suppression of the article of the head noun in (127) conforms to the more general behaviour of inherently definite determiners. We should keep in mind the fact that Poss is a definite article [M M ; 1967 : 71 , 1977 : 19]

- (130) clădirea această modernă // această modernă [V] clădire [V]
prietenul meu // al meu prieten [V]

The discussion shows that either Poss Deletion or Genitive Shift must apply if the definite article immediately precedes Poss.

1.3.2. We had mentioned the existence of two ways of expressing the genitive for relative clauses : (117 a) and (117 b) above. It is immediately apparent that they result from the two transformations discussed above ; (117 a) is the outcome of Genitive Shift and (117 b) is the result of Poss Deletion. One should retain the fact that in relative and interrogative clauses structures resulting from Genitive Shift are stylistically unmarked ; this is not surprising if we realise that at least

in interrogative clauses the rule is obligatory (no post nominal genitive is available), and in RRCs, structure (117 a) is strongly preferred. Compare (131) with previous examples:

- (131) a. Ale cărui copil sînt jucăriile astea ?
 b. Mă voi închina artei al cărei slujitor vreau să fiu. [N :18]

Not both structures are always available ; (117 b) occurs in a wider range of contexts ; thus (117 a) is excluded if the head of the genitive is itself a genitive or dative.

(132) Accusative head.

- a) Mă aflu pe malul rîului în undele căruia // în ale cărui unde se oglindea cetatea.

Dative head.

- b) Mășterul multumită sacrificiului căruia / multumită al cărui sacrificiu s-a înălțat minăstirea a intrat în legendă.

Genitive head.

- c) Atrizii erau una dintre familiile asupra membrilor cărora // asupra ai / alor căror membri / membrilor / unor membri se abătuse urgia zeilor.

The ungrammaticality in (132 b), (132 c) may have to do with the morphology of al, as suggested by Nilsson [1969 : 19] [the Genitive + Dative forms alui, alei, alor (exception alor in casă alor mei etc.) are scarcely ever used], as well as the fact that, for instance in (132 c) one cannot drop the definite article on membrilor as required by Genitive Preposing, and still show that membr is in the genitive case as required by asupra,

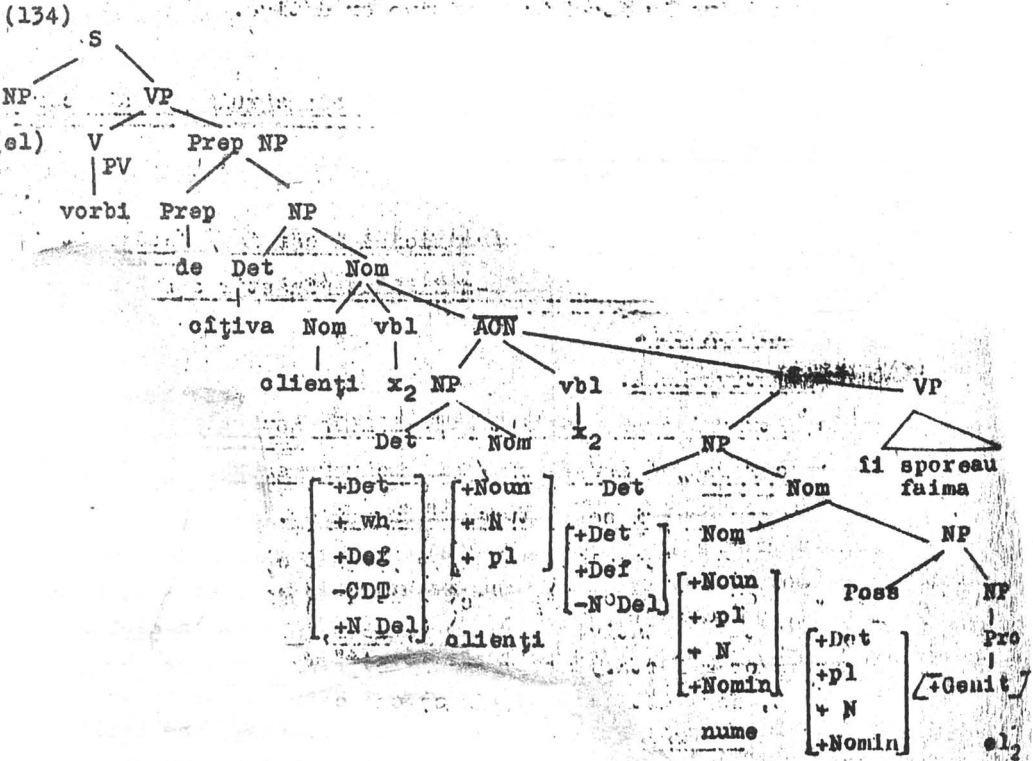
1.3.3. It is now possible to present the derivation of sentences (133 a-b).

- (133) a. Vorbi de oțitva clienți ale căror nume ilustre îi sporeau faima. [CP - 45].

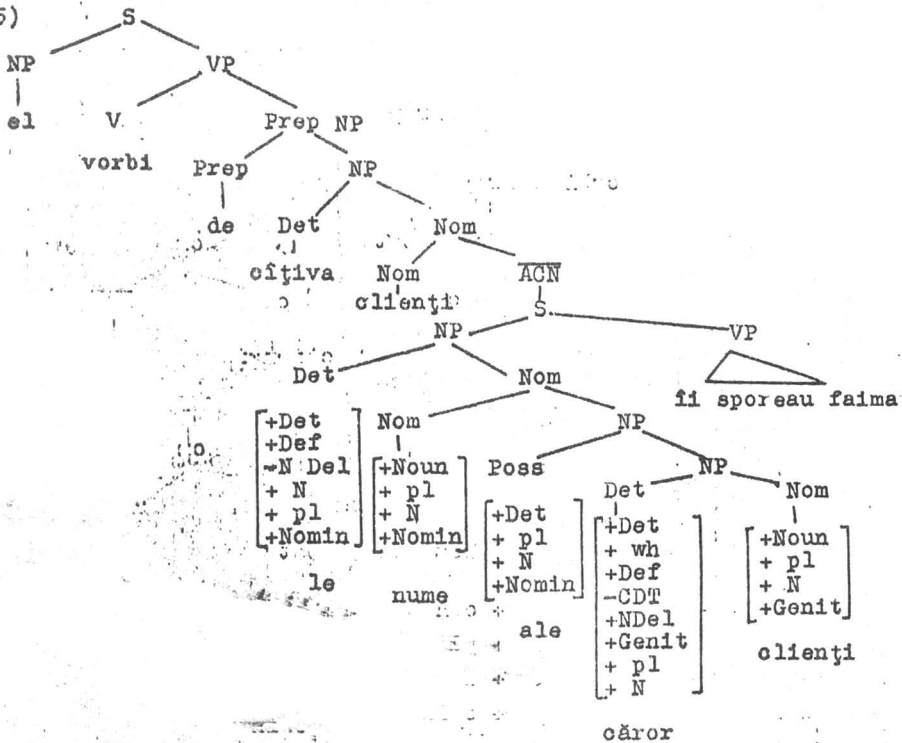
- b. Vorbi de oțitva clienți numele ilustre ale cărora îi sporeau faima.

- c. He spoke about some customes whose names added lustre to his fame.

The underlying structure of (133 a-b) is subject to Relative Binding and then to Agreement. Agreement will also involve the Poss constituent, on which it copies the gender, case, number features of the head of the genitive [nume], (see PM (135)). The next transformation is wh-Movement, constrained by obligatory Pied Piping, so that it moves the boxed NP of PM (135). When Rel Movement has applied the NP which was fronted meets the structural description for either Poss Deletion or Genitive Shift.

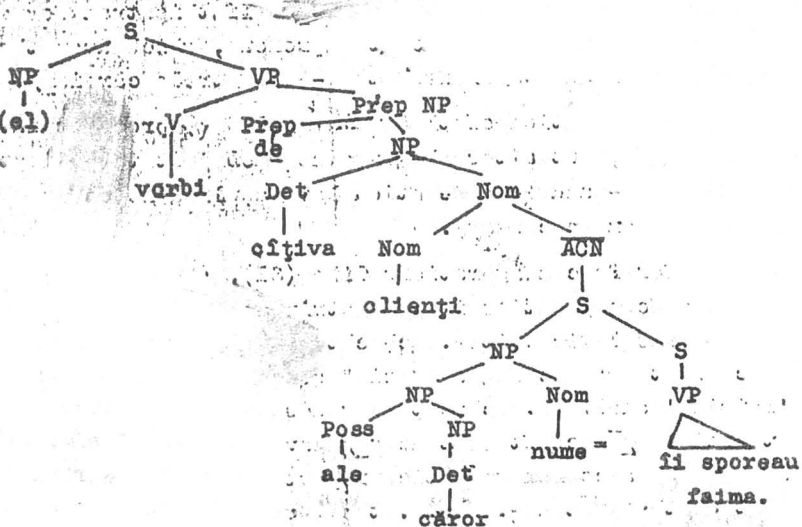


(135)

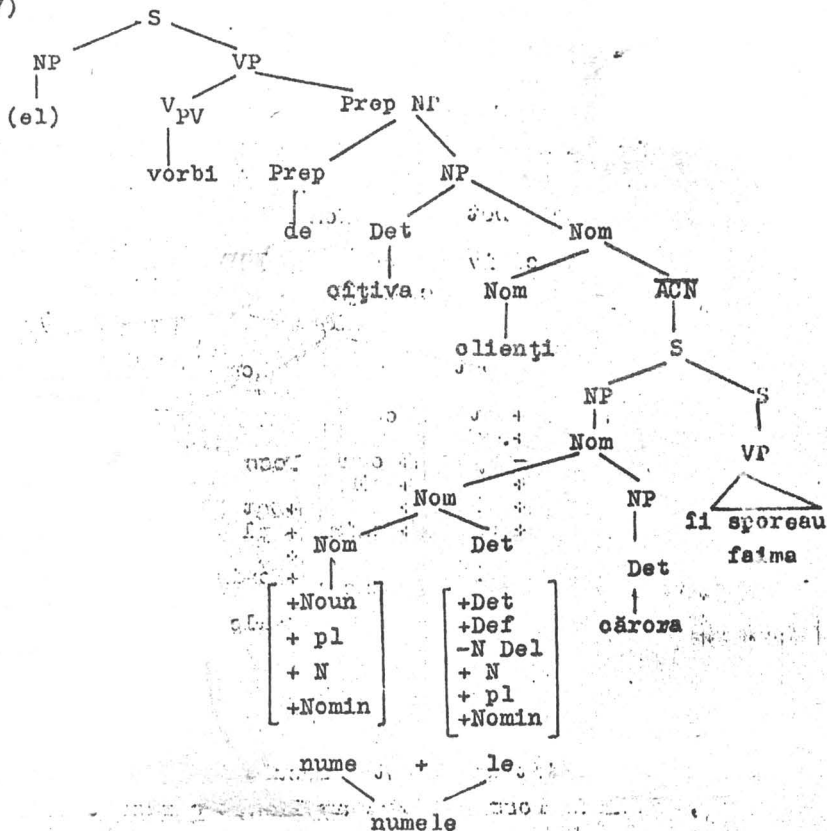


If Genitive Shift applies the result is PM (136) corresponding to (133 a), while if Poss Deletion applies, the result is PM (137) corresponding to (133 b).

(136)



(137)



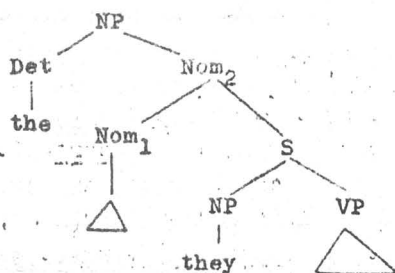
Note : The morphophonemic rules will also have to be sensitive to the features [+ Genitive Shift]. If this transformation has applied shorter forms of the pronoun, which drop the final a, are used [ale cărei ferestre - ferestrele căreia].

The derivation of the English (133 c) proceeds in much the same way, but after wh-Movement - subject to obligatory Pied-Piping - and Noun Deletion have applied no other transformations are necessary.

1.4. So far in configurations like (81), (112), we have assumed that the Noun position in the matrix and relative are filled by the same lexical item. Schachter (1973), challenges what he calls the "matching analysis" suggesting a 'promotion' or 'raising' analysis. Schachter argues that RC and focus constructions [= cleft sentences] have many formal similarities, as well as a common semantic property : both "foreground" one part of the sentence. I.e. the focus constituent and the

relativized nominal 7. The conclusion is that the derivation of both constructions involves a common rule : the promotion or raising of material from an embedded clause into a matrix sentence. In Schachter's analysis, in a configuration like (138) the head

(138)



nominal is a dummy symbol, which is replaced by the material from the RC, which is "promoted" in the relativization process. An important argument in favour of the promotion analysis is the behaviour of certain idioms under relativization. Nouns like E. headway, tabs, R. aere (pl), are normally restricted to

occurrence as objects of specific verbs : to make headway, to keep tabs, a-și da aere ; get. in RRCs they are not so restricted.

(139) a. * The headway was satisfactory.

b. The headway that we made was satisfactory.

c. ? Mă amuză aerele.

d. Mă amuză aerele pe care și le dă.

Schachter's analysis successfully accounts for the data, generating the idiomatic nominal only in its normal position [see PM (138)].

In our framework relativization depends on variable index coreference, not lexical identity, and one of the nominals is redundant anyway. Hence we can let one (or both) coreferential positions be lexically unspecified and add a filtering device like (140) :

(140) Mark as ungrammatical any surface structure that for some category ϕ contains a lexically unspecified variable Δ_ϕ . In the course of a derivation a dummy nominal symbol may be replaced by a coreferent nominal (as in Schachter's analysis), deleted or incorporated. To give an example, in the analysis of Free Relative Clauses it will be convenient to postulate an empty nominal head, deleted transformationally.. (see the next section).

2.0. Is 'cel ce' a compound relative pronoun ? Gramatica Academiei [1966 : 162] mentions the compound relative pronoun : cel ce, ceca ce, as used in "Nu e nebun cel ce mănâncă nouă pite late,

ci cel ce l le da". Other researchers [Bidu Vrinceanu, 1966 : 87-93], Nilsson, 1969 : 43-45] make a difference between cel care / cel ce. The former, cel care should be analysed as an antecedent [= demonstrative pronoun] + relative pronoun sequence, the two elements are independent and can be separated by intervening material : cel de la care am imprumutat cărțile. In contrast the elements of 'cel ce' have become fused and no preposition, not even pe, can separate them *cel pe care l-am întâlnit. However ce in cel ce can be replaced by care with the exception of the "neuter" pece ce / *care. Vrinceanu and Nilsson rightly concluded that only cece ce is a compound pronoun, while cel ce is an antecedent (demonstrative pronoun) + relative pronoun sequence.

In this section we would like to bring further arguments proving that cel ce need not be analysed as a compound relative and that it represents a structure of the type antecedent + relative pronoun. Our position is, therefore, that of Bidu Vrinceanu [1966] and Nilsson [1969]⁵⁾; we differ from them only in that we prefer to interpret cel as an adjectival article. This position has the additional advantage of explaining why cel does not occur as an independent element [Remember MM's [1967 : 91] opinion that 'cel' is a semi-independent pronoun].

- (141) a. Unde e omul acela care mă sperie pe mine. [GA : 113]
b. Unde e omul acela ?
c. Unde e omul cel care mă sperie pe mine ?
d. *Unde e omul cel ?

2.1. In support of this position we mention the following facts :

2.1.1. 'Cel ce' has the same occurrence range with cel care and also with acel ce, acel care.

Notice that one cannot insert a preposition in acel ce either : *acel pe ce l-am văzut ; yet it was never suggested that acel ce should be analysed as a compound relative pronoun, obviously because acel is an independent element. As to acel ce / care, cel ce / care, their important similarity is that acel and cel are invariably marked for the function of the antecedent while care / ce are marked for their function in the relative clause. Consider the following

examples:

Acel care / ce

(142) a) Acel care reprezintă în mod foarte complicat această tendință de erudiție este, am spus-o, Dimitrie Cantemir.

[I : 137]

b) Si în Muntenia și în Moldova primele lui domnii au fost scurte, căci apucase o cale care nu era aceea pe care o putea îngădui țara, ci aceea cu care era deprins la curtea sultanului. [I : 146]

c) Imediat după cunoașterea limbilor se trecea la urmărirea normelor gândului și la ceea ce putea să vadă o epocă fără îndrăzneală în domeniul care de fapt ni este închin nouă, al lucrurilor mai presus de aceea ce natura spune simțurilor noastre. [I : 152] (Note the parallel use of 'aceea ce' and 'ceea-ce')

Cel care / ce

d) Vlăgă marturului, a celui care a văzut sîngele și lacrimile, lipsește. [I : 55]

e) Îl sună pe violonistul Morel, care îl felicită pentru întoarcearea sa pe tonul grăbit al celui ce vrea să termine repede o conversație. [Cp : 115]

f) pămîntul ud de ploile din timpul nopții și cele ce continuau să cadă. [Cp : 116]

g) ... atunci ei, care știau și românește, au început a batjocuri pe cei cari stăteau ascunși înăuntru transeelor. [I : 35]

2.1.2. Another fact that points to the similarity of cel care and cel ce, as well as to the fact that cel ce is still analysable into cel + ce is that cel can serve as an antecedent for coordinated relative clauses introduced by ce and care.

(143) So duse la cel ce-i fusese dascăl și care-i era acum prieten apropiat.

It might be objected that in (143) ce must follow cel.

(144) ? Se duse la cel care-i fusese dascăl și ce-i era acum prieten apropiat.

But notice that the same constraint operates when the antecedent is a noun.

(145) ?? Se duse la omul care-i fusese dascăl și ce-i era acum prieten apropiat.

(146) Se duse la omul ce-i fusese dascăl și care-i era acum prieten apropiat.

2.1.3. The fact that no preposition can be inserted between cel and ce in cel ce is no argument for the existence of a compound relative pronoun cel ce, because in dependent relative clauses ce is always invariable. *cea cu ce scriu / *pana cu ce scria. In some independent relatives and in interrogatives (i.e. when ce is [- Def.]) ce can be preceded by prepositions.

(147) Cu ce scriu ? // N-am cu ce să scriu.

The behaviour of ce is easily accounted for if ce is analysed as a simple independent relative pronoun.

2.1.4. We suggested above that cel is a contextual realization of the definite article, occurring in contexts where the noun determined by a definite article is followed by certain categories of modifiers. It was said [VG, 1969 : 205 ; MM, 1972 : 260] that cel does not occur if the modifier is a relative clause and that cel is the mark of an "attributive" transformation. This is not strictly true. It is a fact that RRCs are only seldom, if ever, preceded by cel when the antecedent is (contains) an expressed nominal. Cel appears, however, more frequently with NRRCs.

(148) Cînd era vorba de luptă fără orărare, Isaia, cel care ar putea fi socotit un Eschile al literaturii evreiești.

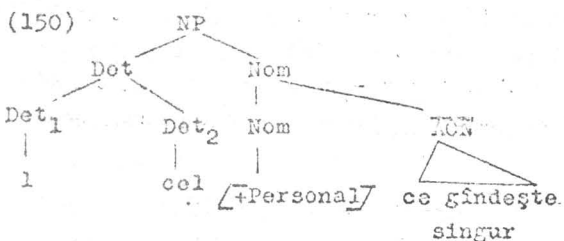
[- I : 46]

We claim that cel does occur with RRCs as well, (only) when it is the only antecedent, that is, when the nominal + definite article, which is the full antecedent, is deleted.

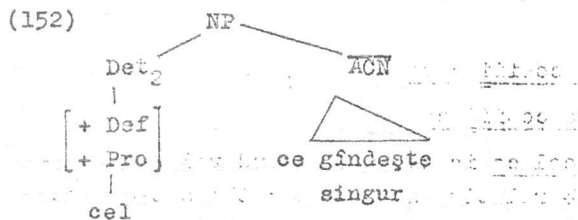
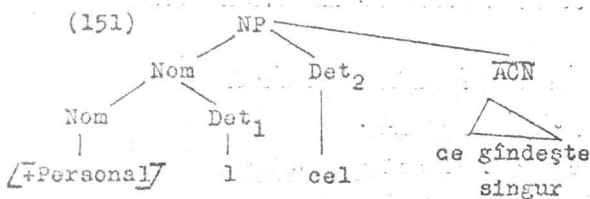
Cel is thus generated only in the context of a modifier,

and is left to function as an antecedent, when the head nominal is erased. Thus, ignoring the derivation of the RC itself, a structure like (149) goes through (roughly) the following stages :

(149) Cel ce gindește singur ai scormone lumina.



(150) undergoes article post posing, yielding a structure, perhaps like (151). Normally, with RRCs, the antecedent nominal is retained and Det₂ is deleted. But it may be that the antecedent is a proform in the sense of Postal and then the antecedent undergoes Deletion and Det₂ is left to function as an antecedent. This rule of nominal antecedent deletion - an optional rule



should be ordered before cel - Deletion. It is important to specify that, from a syntactic point of view, structure (152) is still analysable as an antecedent

(head nominal) + dependent relative clause, formally alike with any other structure where the antecedent is a pronoun. We emphasise that such structures should not be mistaken for free relative clauses (as done in MM, 1977 : 15) ; cel ce / care have a pronominal antecedent always marked for case according to its function in the matrix, while the relative pronoun is marked for its function in the RC (see examples (124) above). In contrast, with free relatives there is only one pronominal form in the surface structure, namely the relative pronoun, and that form is marked for use either according to the function of the shared nominal in the RC₁ or according to the function of the antecedent.

- (153) a. Cine fură azi un ou mîine va fura un bou.
 b. Cine se amestecă în tărîle îl mîinecă porcii.
 c. Le-am dat cui le-a cerut primul.

2.1.5. As a further argument in favour of the analysis that claims that cel is left over after the deletion of a Nom + Def Article string, notice that cel co-occurs only with two other 'pronouns' toți (frequently) amîndoi (not fully acceptable).

- (154) a. Toți cei care l-au cunoscut l-au îndrăgit.
 b. ?? Pe amîndoi cei care s-au plîns poți să-i trimiți la arest.
 c. * Mulți / cîtiva / unii cei care au venit să se înscrie nu au pregătirea necesară.

(154 a-b) are acceptable because toți and amîndoi are pre-determiners that obligatorily co-occur with the definite article, and cel is an antecedent variant of the definite article.

- (155) a. toți / amîndoi copiii care
 b. * mulți / cîtiva copiii care

We conclude that cel ce is not a compound relative pronoun but an antecedent + relative structure ; the antecedent is the adjectival article, functioning as a semi-independent pronoun after the deletion of the nominal.

2.1.6. We have mentioned the fact that ceea ce, where the antecedent has "neuter" meaning is peculiar in that ce cannot be replaced by care and that on account of this some researchers concluded that ceea ce is a compound relative pronoun.

- (156) Atunci împăratul Verde și fetele sale au rămas incremenite de ceea ce / *care / *pe care au auzit. [C: 106]

While this interpretation is certainly plausible, it is only partly justified.

2.1.6.1. First notice that there are other "neuter antecedent" combinations where ce cannot be replaced by care. e.g.
aceea ce / tot ce. [Nu cred aceea / tot ce-mi spui Nu ored

*aceea / *tot pe care mi-l spui]. Should we consider all these forms compound relatives?

2.1.5.2. Ceea ce can still take tot as a predeterminer, while genuine compound indefinite relatives [orice, oricare] as well as simple relative pronouns that occur in free relatives do not accept any trace of the antecedent. [If ceea ce is taken as a unit then ceea ce clauses would be free relatives]. Compare

(157) a) ... pentru că am adus la îndeplinire tot ceea ce ne-ai poruncit, [C: 102]

b) Ce cărți i-au mai rămas sînt în dulap.

b'. *Toate / *Tot ce cărți i-au mai rămas sînt în dulap.

c) Cheamă cîți prieteni ai / *toți cîți prieteni ai.

d) Orice / *tot orice i-a mai rămas, poți să iei tu.

We believe that it is still profitable to analyse ceea ce, aceea ce, tot ce as antecedent + relative pronoun construction, which "tend" to become compound forms. The idiosyncracies of ceea ce, aceea ce will figure in the lexicon as co-occurrence restrictions between neuter antecedent determiners and the relative ce. The development of these forms might be viewed as an illustration of the phenomenon that Morin [1976] called "the lexicalization of a syntactic construction" - a process by means of which a free syntactic construction tends to turn into a morpheme.

3. The transformation described in 2.1.4. should be viewed as one of Nominal / Noun Deletion not NP Deletion. Notice that part of the determiner is left - namely cel (see (152)) and only the definite article is deleted, which after being postposed is dominated by Nom (see (151)). In fact, this rule of Noun Deletion is the one described in II A (58). [If this view is adopted, then - 1 is [-N-Deletion] while 1... cel is [+N-Deletion]]. Noun Deletion plays an important part in obtaining certain classes of RRCs in both languages.

3.1. As there is no adjectival article in English, it may be of interest to see what English structures more frequently correspond to cel ce / care constructions and also, implicitly to acel(a) ce / care, or even acesta care / ce.

One specific English construction which can be used to translate cel ce / care, acel(a) ce / care is the use of the pro-form

one preceded by the definite article. The construction is more frequent in the singular than in the plural.

(158) a) The annoying preacher is the one who begins telling an interesting story but never quite finishes it.

[K : 279]

b) His father-in-law, Symmachus (probably grandson of the one [who had a controversy with Ambrose about the statue of Victory] was an important man in the court of the Gothic King. [R : 373]

c) The ones who did not anticipate death by suicide were thrown from the Tarpaeian cliff. [K : 213]

One can also be determined by demonstratives.

(159) They'd cripple me in a week. I mean these ones

[I got on], they're no good, they're no good but at least they're comfortable. [P : 14]

Cel ce/ care can also be translated by that / those who / which. The plural form is frequently used ; the singular, usually that-which, used for [+ Neuter] nouns, is felt as formal and emphatic. Thus the productive patterns are the one who / which and those who / which.

(160) a) Those who did not drink walked about to stretch their legs. [K : 212]

b) A secret and incurable discord was cherished between those who were most apprehensive of confounding, and those who were most fearful of separating the divinity and the humanity of Christ. [R : 367]

c) The speech contained little of that which had spread his reputation far beyond the Birglar County : little of the fiery, fearless eccentricity which was inherent in his utterances. [H.B.]

That which, (ceea ce) is frequently replaced by what (see next section). That (which) should be used, however when, Noun Deletion operates under identity with preceding material (not by deleting a pro-form).

- (161) a. This Platonism was in many ways different from that which a modern student derives from Plato. [R - 418]

Furthermore, the antecedent NP in (151)⁽¹³⁶⁾ can be replaced by a III-d person personal pronoun, as such pronouns marginally accept RRCs in English, not in Romanian. (In both languages, personal pronouns of all person accept NRRCs).

- (162) a. How gently they breath, they who are about to die. [TP : 92]
 b. They who obtain divinity become gods. [R - 370]
 c. I wish to explain to him who asks.. [R - 354]

3.2. In both languages, all determiners marked [+N Deletion] can function as heads of RRCs on the model discussed above. Noun Deletion can erase a pro-form ; in other contexts a noun is deleted under identity. Not all determiners tolerate both kinds of Noun Deletion.

Romanian : the demonstratives, mulți, oțiva, puțini, unii, alții, toți, ficcare, oricare, amândoi etc.

English : the demonstratives, many, much, few, little, some, others, all, any, etc.

- (163) a. That's all I got. [P : 23] a'. Asta e tot ce am.
 b. There are some who go so far as to assert that the treaty is invalid.
 b'. Sînt unii care merg pînă acolo încît să afirme că tratatul nu este valid.
 c. There are many who believe it. c'. Sînt mulți care cred asta

3.3. Finally another transformation, that may affect the head of RRC is Article Attachment, a word formation rule that attaches certain indefinite determiners, every, any, some, no, marked [+ Attach] to certain noun stems also marked [+ Attach]: one, thing, body, place, time, times.

This rule is discussed in Stockwell [1973 : 221-223]. This rule would apply at some point in the derivation of certain RRCs headed by indefinite pronouns.

- (164) a. You gave up everything a man is supposed to want. [V : 74]
 b. You must tell me something I don't know. [P : 24]
 c. There's nothing you can call your own. [P : 51]

The rule is of theoretical interest for the present analysis. If the rule is accepted then we can maintain the important generalization that RRCs are nominal modifiers (CN/CN constituents) not NP modifiers, even for strings like (164).

Such a rule is likely to be needed in the grammar of Romanian,

if one wishes to treat (certain classes of pronouns in a unitary way and to account for the behaviour of forms like cine, careva, nimeni etc., forms which are never used as determiners, and which incorporate the semantic feature [$-$ Personal].

Actually MM [1977 : 14] does suggest that cine incorporates [$-$ is attached to] an abstract nominal [$+$ Person]. One might in the same way : cineva, oricine, fiecare, nimeni while ceva, nimic may be viewed as incorporating a [$-$ Personal] noun. This rule would apply at some late point in the derivation of certain RRCs.

- (165) a. Nu-i nimic ce le-ar putea sta împotriva. [N : 46]
 b. Pe cap purta ceva care semăna cu o pălărie. [N : 46]
 c. Avea sentimentele cuiva care începe a descoperi o lume nouă. [N : 47]

The introduction of this rule would have the same advantage for the description of noun modification by other types of attributes.

Notes.

- 1). For a definition of applicative constraints' and 'constitutive constraint', see Bach and Horn [1976 : 266]
- 2). Romanian uses the following pronouns in RRCs : care, ce, cît. The pronoun cît is analysed in the section devoted to amount relatives. Regarding the usage of care/ce, Maria Iliescu concludes the following. "Care l-a înlocuit pe ce în limba vorbită şi populară, lăsînt celui din urmă domeniul poeziei şi al stilului mai căutat, arhaizant."

The two pronouns are not always in free variation. There are situations when ce cannot be used because it cannot be inflected or preceded by prepositions. [see more on this in our discussion of the accessibility hierarchy, (part IV)]. Lack of inflections may lead to ambiguous uses of ce, the ambiguity may be avoided by using care [Compare : A adus un om ce îl bătu zdravăn with A adus un om pe care îl bătu zdravăn / A adus un om care îl bătu zdravăn.

On the other hand, Nilsson notices the existence of certain pronominal antecedents which have neuter meaning' and with which ce is used in preference or exclusively :

"Il faut aussi tenir compte du cas où l'antécédent est un pronom de sens neutre. On peut distinguer trois groupes de pronoms de sens neutre : a) Les démonstratifs : aceea, ceea, cea, cele, asta ; b) tot, toate ; c) ceva, nimic.

Avec les antécédents du groupe a, et avec tot on n'emploie que ce [1969 : 59]

- 3). The 'neuter' antecedents are those mentioned in note 2.
- 4). Given our subject, we did not attempt to write verb subcategorization rules for English and Romanian. In the case of English the problem can be considered to be solved, at least in its main aspects [Chomsky (1965), Rosenbaum J. (1967) a.o.]. In the case of Romanian, an elegant adequate solution was offered by Pană - Dindelegan [1974], a solution which makes use of relational (functional) categories. For reasons of technical simplicity, and to avoid having another categorial grid in between syntactic categories and logical types we preferred to avoid introducing relational categories in MG. We hope that appropriate subcategorization rules for Romanian can be formulated by using syntactic features to subcategorize grammatical (not only lexical) categories, in our case, NPs. This extension of subcategorization has already been used in the literature [Weinreich (1968), Dougherty (1971), etc.].

The most salient feature of the DO and IO in Romanian is that they are reduplicated by Accusative and respectively Dative unstressed personal pronouns. This suggests a PSR of the form

NP \rightarrow NP Pro (Pro \rightarrow Pro [α case]), discussed in Keenan (1971) and, for Romanian in MM (1972). The following NP subcategorization rules can be written :

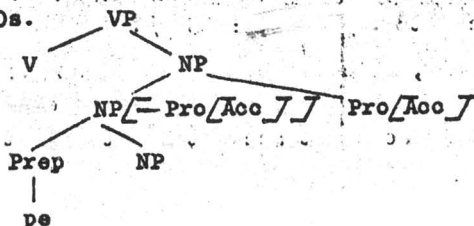
NP \rightarrow Prep NP / _____ Pro [Acc], where Prep \rightarrow pe

NP \rightarrow NP [Dat] / _____ Pro [Dat], where Prep \rightarrow la
Prep NP / _____

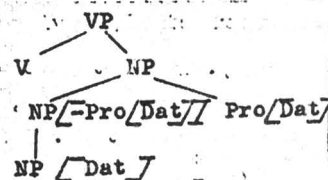
(La-a vorbit studenților // la studenți // lor)

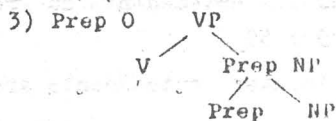
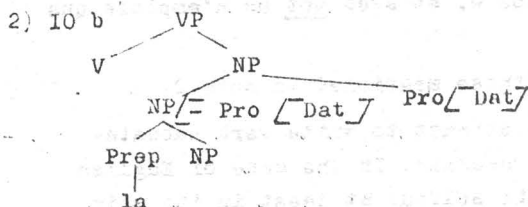
The case of NPs dominated by prepositions is given by the respective preposition. The grammar produces the following configurations for DOs, IOs, PrepOs.

1) DOs.



2) IO





The following verb subcategorization rules can be written

- $V \rightarrow CS / \text{---} \quad NP_{\langle \text{Pro} \rangle} [\text{Acc}]$ (e.g. a ști ceva / a crede ceva)
 $V \rightarrow CS / \text{---} \quad NP_{\langle \text{Pro} \rangle} [\text{Dat}]$ (e.g. a aștepta cineva)
 $V \rightarrow CS / \text{---} \quad \text{Prep NP}$ (e.g. a depinde de ceva)
 $V \rightarrow CS / \text{---} \quad NP_{\langle \text{Pro} \rangle} [\text{Acc}] \quad NP_{\langle \text{Pro} \rangle} [\text{Dat}]$ (e.g. a pîri pe cineva cuiva)

Verbs that take a Direct and Secondary Object, discussed in Pană (1974) are introduced by the rule :

- $V \rightarrow CS / \text{---} \quad NP_{\langle \text{Pro} \rangle} [\text{Acc}] \quad (NP [\text{Acc}])$

The following rules, implicit in the generation of configurations 1-4, show that subcategorization rules intervene at the level of grammatical categories.

- $VP \rightarrow V \quad NP$
 $VP \rightarrow V \quad NP \quad \text{Pro}$
 $VP \rightarrow V \quad NP_{\langle \text{Pro} \rangle} [\text{Acc}]$
 $VP \rightarrow V \quad NP_{\langle \text{Pro} \rangle} [\text{Acc}] \quad \text{Pro} [\text{Acc}]$

This is roughly the form of the grammar that we employ for the purpose of the present analysis of RCs.

If one preferred to introduce unstressed pronominal forms by transformations, one could subcategorize NPs according to the rule feature $[\text{---} \text{Pro} [\text{Acc}] \text{Reduplication}]$ and obtain the desired results.

5). The same point of view is expressed by Prof. Graur, in an older paper, where he writes "Singura soluție corectă este că cel face parte din principală. Dar prin incorporarea acestui pronume, inutilizabil fără atributiva următoare (emphasis mine, A.C.) principală devine insuficientă". [SG I, : 136].

6). The alternative analysis, which we have assumed so far analyses cine, nimeni as determiners which undergo obligatory Noun Deletion. This analysis does not account for the feature $[\text{---} \text{Personal}]$.

C. Free Relative Clauses.

C. This section concentrates on a class of RCs, which are similar to RRCs in their underlying structure, although their surface structure is different. We will use the terms Free Relative Clauses [= FRCs] or Independent Relative Clauses [= IRCs] to designate such clauses.

(166) a) Whoever swims in sin shall swim in sorrow.

a') Cine se scaldă în păcat se va scaldă în durere.

b) I realise you insist on being paid for whatever job you do. [AN : 3]

b') Îmi dau seama că insistă să fii plătit pentru orice treabă faci.

c) 'You should know now, Ivan, that I am God and can grant you whatever you ask of me.'

c') Află acum, Ivane, că eu sint Dumnezeu și pot să-ți dau [orice-î cere de la mine.] [C : 120]

d) I can't tell you where that is unless you agree to [what I say]

d') N-am să-ți spun unde e locul acela dacă nu ești de acord cu [ce-ți spun.]

e) Ar fi putut cere în căsătorie pe oricare fată ar fi vrut. [N : 198]

e') He could have proposed to whatever girl he would have chosen to.

0.1. Most English grammars that have dealt with such clauses (e.g. those by Sweet, Jespersen, Poutsma, Scheuerwegs, Quirk) have placed them in the category of relative clauses, (a notable exception is Curms (1931, 158, 172) who treats them under 'subject clauses', or 'object clauses', without assigning them any categorial status).

There is however little terminological agreement regarding the term used to designate such clauses : Quirk [1972 : 732] labels them 'nominal relative clauses'. Scheuerwegs [1959]

uses the term relative clause without expressed antecedent. The terms used here, free relative clauses, independent relative clauses, have become current in the transformational literature.

Among Romanian linguists, Guțu-Romalo [1957] appears to be the first to claim that such clauses are relative clauses. According to her, relative pronouns can introduce other subordinate clauses besides attributive clauses. "Existența acestui tip de subordonare justifică și impune extinderea termenului de propoziție relativă la toate subordonatele introduse prin cuvinte relative. She suggests a very interesting classification of subordinate clauses, according to the means of establishing the relation between the main and the subordinate clause :

- " a) propoziții paratactice ;
- b) propoziții relative ;
- c) propoziții conjuncționale".

This is a very clear definition of relative clauses as a syntactic type. Guțu [1957] does not discuss clauses introduced by oricare, oricine, orice, these pronouns are included among the indefinites [Gramatica Academiei 1966 : 177]. In fact, in one of their uses, these pronouns are best viewed as indefinite relative pronouns, because clauses introduced by them have all the properties that clauses introduced by care/cine/ce have.

Nilsson [1969] clearly speaks of independent relative clauses. Half of her amply documented study is devoted to the "termes relatifs employés sans antécédent", a category which, in her work also includes : oricare, oricine, orice, oricît.

Working within a transformational framework, MM [1977, 1977b] discusses the class of RCs without expressed antecedent ; the classification does not entirely overlap with ours, not only because she does not discuss clauses introduced by oricare etc., but also because she analyses as IRCs clauses of the type Cel ce gîndește singur, which we prefer to regard as dependent RCs, given their syntactic properties. In the present analysis, similarities of meaning between cel care/cine, ceea ce/ce, are viewed as similarities of deep structure

apparent in the semantic analysis.

All of these authors come to an implicit or explicit categorial definition of RCs, as a specific type of subordination.

0.2. In FRCs both languages use, in addition to simple relative pronouns a class of compound relative pronouns.

The sets of pronoun forms are as follows :

English : 1) Simple forms : (who) (no longer in use, replaced by whoever), what.

2) Compound -ever forms : a) whoever [this pronoun is seldom inflected : ask whoever you meet ; whoever is literary the genitive whosever (e.g. whosever it is, I mean to have it) is highly infrequent, a second form whoever's is found in colloquial usage] ; b) whatever, whichever (as for the women, he could have whichever of them he liked).

3) Compound - so ever forms ; these are much less frequent : they "belong to rhetorical language", (Schibsbye [1958]) : a) whosoever (whomsoever, whosoesoever) ; b) whatsoever (May Almighty God keep you in His grace, and whatsoever things should be done justly, whatsoever things with clemency may the Holy Spirit who dwells in your breast direct). [R : 386]

Romanian : 1) Simple forms : cine (inflected for case), care (inflected for case, gender, number), cît (inflected for case, gender, number), ce (invariable).

2) Compound - ori forms : oricine, oricare, oriorit, orice ; their morphology is similar to that of the simple forms :

1. The antecedent. In this paragraph we show that although those clauses lack antecedents in the surface structure, there are compelling, syntactic and semantic arguments for positing a (dummy) antecedent in their underlying structure ; in both languages there is evidence that these clauses are ACN constituents at some level of analysis.

Syntactic arguments for positing an antecedent are furnished by an interesting class of agreement and pronominalization phenomena that can hardly be explained otherwise :

1.1. Consider first number agreement of the verb in the main clause in English and Romanian. As is known, ^{complement} subject clauses take singular matrix verbs even if they are coordinated.

- (167) a. That he agreed to do it is beyond any doubt.
 a'. Că n-a învoit s-o facă e în afară de orice
îndoială.
 b. That he won and (that) you lost is/are truly
amazing.
 b'. E cu adevărat uimitor că el a câștigat și (că)
tu ai pierdut.

However, if the subject is a FRC, the matrix verb is either in the singular or in the plural as shown by the following examples taken from the corpus.

- (168) a. What may be and must be is. [R - 417]
 b. What he had to say was the truth, the whole
truth and nothing but the truth. [HB - 17]
 c. What would be virtues in a Christian are vices
in a pagan. [R - 361]
 d. What we call Public Schools are not owned by
the state. [Pt]

- (169) a. Care din dumneavoastră nu crede n-are decît
să o măsoare. [N : 146]
 b. Care nu pieriseră de sabia slujitorilor domnești
fugiseră toți în pribegie. [Sad.: 232]

If there were no antecedent, there would be no way of explaining the varying number feature on the matrix verb in (168), (169), since on the surface (168), (169) present subject clauses no different from (167). On the other hand, if (168) (169) are instances of ACN in the underlying structure, then there is a subject antecedent in the matrix and it is the number feature of this nominal which is copied on the verb.

Furthermore, under coordination, FRCs behave like NPs not like clauses (Ss) as they always take plural matrix verbs :

- (170) a. Ce spune popa și ce face popa sînt lucruri diferite.
 - b. What they want and what they get are true dimensions..

[V : 96]

This is easily explained if FRCs are ACNs i.e. members of NPs which are coordinated.

1.2. In Romanian, there is number and gender agreement of a predicative adjective with the subject, normally. With complement subject clauses the adjective invariably has neuter form. When the subject is a FRC, the predicative adjective agrees in gender and number with the implicit antecedent. Compare (171) with (172) :

- (171) E important să rămînem în viață și să construim.
 (172) Care mai rămăseseră în viață erau răpuși/de oboseala luptei.

1.3. In contrast with complement clauses, which are pronominalized by typical pro-sentence from (e.g. English it/so, Romanian the "neuter" o, asta), FRCs are pronominalized by ordinary personal pronouns, or demonstrative pronouns, and there is gender and number agreement with the antecedent. In Romanian direct and indirect object reduplication offers very good examples.

- (173) a. It can't have been true that Tom had been killed.
and you shouldn't have believed it.
 a'. Nu putea fi adevărat că Tom fusese ucis și n-ar
fi trebuit să crezi asta/s-o crezi.
 b. Whoever told you that Tom had been killed was
lying and you shouldn't have believed him.
 b'. Cine ți-a spus că Tom fusese ucis mințea și n-ar
fi trebuit să-l crezi.

(Notice that (174 a, b) are possible sentences but the pronouns it / o refer then not to the whole subject clause, but only to the complement of the verb told / spus :

- (174) a. [Whoever told you [that Tom had been killed]]_{NP} was

lying and you shouldn't have believed it anyway.

- b. Cine ți-a spus că Tom fusese ucis mințea și n-ar fi trebuit să crezi asta oricum.) :

Here are more Romanian examples based on direct and indirect object reduplication or by resumption by demonstrative pronouns. Contrast (175) and (176) :

- (175) a. Cine se amestecă în țărîțe Ți mîncă porci.
 b. Cine omoară un dușman Ți iartă Cel de Sus păcatele.
 c. Si Țcare dintre cai a veni la jăratecȚ, acela are să te ducă la împărăție și are să te scape de de multe primejdii. ȚC : 48Ț
 d. Pe oricine venea la el Țil primea cu multă-bucurie.

- (176) Că nu-s frumoasă o știu de cînd eram mică.

Notice that it would not do to say that the unstressed pronoun refers to an NP in the FRC or to the relative pronoun because there are examples like 175 b where the FRC has no indirect object, the relative pronoun being a nominative subject form while the unstressed pronoun Ți "reduplicates" an indirect object.

We conclude that the unstressed pronominal form or the demonstratives double the implicit antecedent.

1.4. There are also semantic arguments for positing an underlying antecedent.

Suppose that there were no underlying antecedent and that we had semantic rules that simply translated, say, whoever as any man or the man, the interpretation being context dependent. Suppose also that whoever wrote Hamlet was a genius is analysed as in (177).

- (177) whoever wrote Hamlet was a genius 10,2

whoever wrote Hamlet 10,0 he₂ was a genius
 whoever₀ he₀ wrote Hamlet

Thus, if whoever = the man $\implies \forall y \text{ Ț} \wedge x \text{ Țman} \cdot x \implies x = y \text{ Ț} \wedge Q \{y\} \text{ Ț}$; then the translation of

whoever wrote Hamlet will be, finally (178).

(178) $\forall x \left[\wedge x \left[\text{'man'}(x) \rightarrow x = y \right] \wedge \text{wrote} - \text{Hamlet}(y) \right]$

But this actually means 'The man wrote Hamlet'; (178) is a closed sentence and there is no way of continuing the translation so as to get whoever wrote Hamlet was a genius. Notice that any other parsing would lead to results which are just as unsatisfying.

(179) Whoever wrote Hamlet was a genius.

whoever ^xwrote Hamlet was a genius

The last line of (179) is ill-formed. It is difficult to figure out just what kind of constituent ^xwrote Hamlet was a genius could be. Of course, what is necessary is that whoever should be interpreted as the man who - or any man who, but this means that we resort to an antecedent + relative construction.

1.5. Huddleston [1971 : 239] argues that an antecedent is also needed to account for the selectional restrictions imposed by the matrix verb, which should normally apply to a nominal of the main clause. He gives the following examples :

- (180) a. What she was holding in her hand was green and sticky.
 b. ^xWhat she told George was green and sticky.
 c. What she told George was not true.

Assuming there is no antecedent, a first undesirable consequence is that adjectives like green, sticky normally applied to [- Abstract] subject, appear to have [+ Abstract] clausal subjects, as in (180 a), (which should be ill-formed but is not). The ill-formedness of (180 b) results from a conflict between She told John NP₁ and NP₂ was green and sticky. The DO of tell is [+ Abstract], the subject of green, sticky should be [- Abstract].

All these problems are easily solved if we postulate two identical occurrences of the relevant NP, so that the matrix verb imposes selectional restrictions on the antecedent. Thus (162 a) is well formed because its underlying subject is not the [+ Abstract] clause but the [- Abstract] antecedent [The thing / stuff which she was holding ...]

1.6. To show that FRCs are ordinary NPs, not clauses in the DS, one can also use the internal NP - over - S constraint, mentioned here in the formulation of Kuno [1973 : 375]

"Sentences containing an internal NP clause are ungrammatical. An NP clause is internal if it is neither the leftmost nor the rightmost constituent of its immediate parent node (e.g. an unextraposed subject clause is internal)".

Compare the following examples, due to Grosu [1977].

- (181) a. *Could that John hates Mary be true?
 b. Would what John wrote to Bill have any significance?
- (182) a. *I regard that Mary has become a spy as outrageous.
 b. I regard what Mary did as outrageous.
- (183) a. * ? Consider că a plecat fără să anunțe destul de suspect.
 b. Consider ce mi-ai arătat destul de suspect.

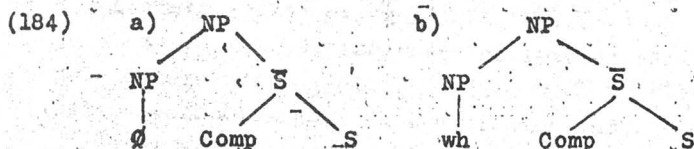
Sentences a) violate the internal NP - over - S constraint, sentences b) are grammatical because FRCs are not internal clauses but members of parent NP nodes.

1.7. We conclude that FRCs have underlying antecedents, and thus belong to the category of ACN constituents. The syntax of FRCs is in all respects similar to the syntax of FRCs but there is an additional transformation which deletes the antecedent, discussed below.

This conclusion regarding the DS of FRCs also solves the translation problem for FRCs - the translation is the same as that of the corresponding antecedent + RRC structure. e.g. [Whoever breaks this law] deserves a fine → [Any person who breaks this law,] deserves a fine.

FRCs are interpreted as terms (NPs) and they have the distribution of terms (NPs) occurring as subjects, DOs, IOs etc.

2.0. Recently a different analysis of FRCs has been proposed in Bresnan and Grimshaw [1978], Woolford [1978]. Unfortunately, we did not have access to the first paper and know of its content only through its brief presentation in the second paper; while it is admitted that FRCs are members of complex NPs in the DS, it is claimed that their structure is that shown in b. not in a ; in b) the wh- term is generated in the base in head position. The derivation of the FRC no longer involves movement into Comp position, but it is obtained by deleting a RC nominal, which is lexically identical to the head. Structure b) is, from our point of view, undesirable semantically; but even syntactically b) is not satisfactory.



2.1. The only kind of data in support of b) over a) has to do with pied - piping :

"Free relatives do not allow pied-piping because the wh-head is base generated and is not moved into Comp position by wh - Movement. Pied-piping only occurs with Comp position" [Woolford, 1978 : 483-484]. We agree that there is some connection between the movement analysis and Pied-piping in the sense that piping phenomena provide the strongest evidence in favour of the movement analysis.

However the evidence against the movement analysis of FRCs needs to be carefully evaluated before making a more general decision.

2.2. First, in both languages FRCs exhibit some clear instances of Pied-Piping.

Thus in English the head of a genitive travels with the genitive relative pronoun.

(185) a. The lovely creatures in my imagination took the form of Mathilda, Fanny or whoever's image at the moment filled my heart. [Pt]

b. Return it to whosoever adress is on the envelope. [Sch]

Few as they are examples like (185) are clear counter examples against the analysis of Bresnan and Grimshaw. Moreover, remember that in that-relatives which are indeed based on deletion, one cannot relativize in genitive position (see part IV).

In Romanian FRCs, prepositions undergo pied-piping, as they always do in RRCs.

- (186) a. N-am de ce mă sprijini.
 b. Nu are din ce trăi.
 c. Cu cîți m-am luptat, pe toți i-ăm învins.

Moreover the fact that pied-piping has such a limited extent in FRCs is not theoretically disturbing, since as stressed by Ross [1967] and Postal [1969], the pied-piping condition is highly idiosyncratic and wh - constructions differ in the degree to which they allow pied-piping. Taking into account only environments where pied-piping is optional. Ross (1972) suggested the following hierarchy of pied-piping for English.

- (187) a. Nothing dragging
 b. Only Prep dragging
 c. NP Prep dragging
 d. Gerunds dragging
 e. Infinitives dragging
- Embedded questions
 Main clause questions
 Restrictive RCs
 Appositive clauses
 [=NRRCs]
-

FRCs should be added on this list as (even) weaker pied-pipers than embedded questions, because while embedded questions infrequently front prepositions, FRCs cannot front prepositions.

2.3. The constraint on pied-piping in (indirect questions and) FRCs is likely to be functional rather than syntactic. As speech is processed clause by clause [Tannenhouse (1975)],

the most significant perceptual role of the wh - form is that of marking the boundary of the subordinate clause ; in dependent RCs (RRCs and NRRCs), the antecedent is also in a position to indicate the boundary of the RCs, this allows for a considerable amount of dragging.

- (188) It was indeed only as an aspect of the preliminary study for one chapter of my inquiry, the notes and data for which fill most of my room. [Bth : 12]

In FRCs, if the antecedent is deleted and Pied Piping were to apply, there would be no syntactic clues left to distinguish between matrix and embedded clause elements.

The constraint on pied piping guarantees that the relative pronoun is the leftmost element which indicates the clause boundary.

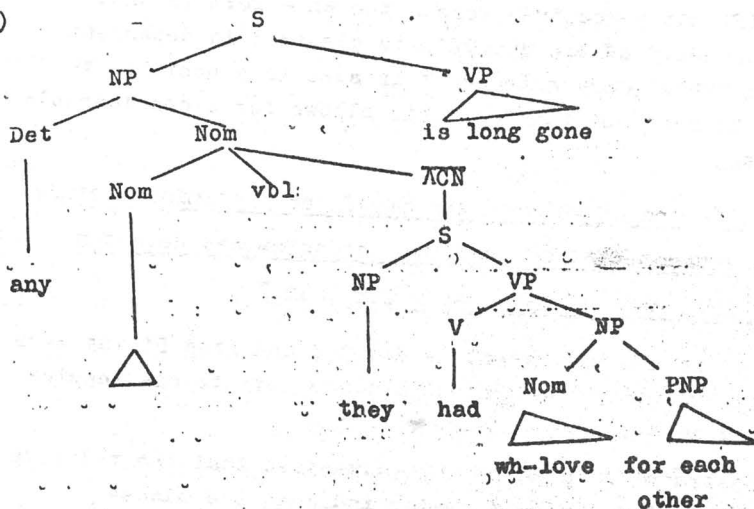
2.4. Another argument in favour of the movement analysis independent of piping phenomena involves the direction of reciprocal and reflexive pronominalization - both go only forward.

- (189) a. John pointed a flattering portrait of himself.
b. *Himself pointed a flattering portrait of John.
c. John and Mary showed a fleeting interest in each other.
d. *Each other showed a fleeting interest in John and Mary.

Consider now the following FRCs :

- (189) a. What paintings of himself John still possesses are of little value.
b. Whatever love for each other they once felt, is long gone.

(190)



Such sentences indicate that there was some stage in the derivation of the clause where the antecedents precedes the pronouns in the same simple clause.

This is the case under the movement analysis [PM (190)].

2.5. Free relative or indirect question ? The presence of an antecedent makes the remote structure of a FRC quite different from that of an indirect question : nevertheless, in surface structure they are quite similar and thus easily confused, especially because there are predicates that may occur with both. Sentence (191) is ambiguous.

(191) They asked me what I didn't know. (Quirk : 739)

(' They asked me that which I didn't know or They asked me "What don't you know ?")

Indirect questions have more restricted distribution, they occur only in positions subcategorized for clauses, while FRCs may occur with almost any predicate. Indirect questions and FRCs have different properties due to the fact that IQs are complement clauses, while FRCs are full NPs. Thus indirect questions govern singular verbs and are pronominalized by sentence substitutes ; FRCs govern singular or plural verbs and they may be pronominalized using any personal pronoun.

- (192) a. What cakes are left are all on the table.
 a'. Ce prăjituri au mai rămas sînt toate pe masă.
 b. What cakes you buy is your own problem.
 b'. Ce prăjituri cumperi te privește.

In both languages indirect questions are subject to transformation typical of complement clauses. Thus the rule of Preposition Deletion optionally deletes a preposition which immediately precedes an indirect question, but not a FRC. Sentences a) can only be indirect questions, while sentences b) are ambiguous.

- (193) a. M-am interesat cine a cîștigat / pe cine a chemat.
 b. M-am interesat de cine a cîștigat.
 a. It depends whom she invited.
 b. It depends on whom she invited.

Likewise, Extraposition which applies to sentency constituents can operate on indirect questions but usually not on FRCs.

- (194) a. What I must do when I get there isn't clear to me.
 b. It isn't clear to me what I must do when I get there.
 c. What he wanted to say was the truth. [HB : 17] ^{V : 44}
 d. It was the truth what he wanted to say.

Note. Y-Movement [Postal, 1969] which may displace any NP can operate on FRCs.

- (195) a. It was very useful, what he had found there.

In English another syntactic difference is that prepositions do not undergo pied piping in FRC, but they may undergo Pied Piping in indirect questions :

- (196) a. The person dying should know, or at least feel sure
 that someone knows for whom or for what he is
dying. [LP : 16]

- b. And they can't imagine what the poor people are talking about. [V : 105]
- c. What they are talking about is their poor life.
- * About what they are talking is their poor life.

Finally, an important difference is that in both languages interrogative pronouns bear sentence stress, while relatives do not.

- (197) a. Marry whom you like. (FR)
- b. I asked who you were going to marry. (IQ)
- c. Mărită-te cu cine vrei. (FR)
- d. Am întrebat cu cine te măriti. (IQ)

3. Brief Description of FRCs in English and Romanian.

3.0. General remarks. 3.0.1. In both languages FRCs are less frequent than RRCs. Nevertheless they are convenient substitutes of RRCs particularly, when the antecedent is a pro-form of the type thing, person, stuff, because such antecedents can easily be recovered from the form of the relative pronoun. Compare :

- (198) a. Show me the thing which you bought / what you bought.
- b. Arată-mi lucrul pe care l-ai cumpărat / ce-ai cumpărat.

FRCs are also convenient when for some reason or another the speaker chooses to describe the referent NP using only such information as is already given in the main sentence. This pleonastic expression leads to a peculiar type of tautology, used in sentences that may acquire various particularized conversational implicatures.¹⁾

- (199) a. He only makes the money he makes.
- b. He would say what he said to every caller, no matter what the hour. [V : 69]
- c. What is done is done.

Such structures are particularly frequent in Romanian.

- (200) a. Ce-i ciocoi tot ciocoi.
 b. Ce-i drept e drept.
 c. Ce-a fost a fost.
 d. Tine scama că sînt cine sînt.
 e. Vom fi ce-am fost și mai mult. [I :]
 f. Cînd ai făcut ce-ai făcut ce pretenții mai ai ?

3.0.2. From the syntactic point of view, FRCs receive the same transformational analysis as RRCs, but there is one additional rule : The deletion of the antecedent NP (nominal + determiner), i.e. The Antecedent Deletion Transformation (= TAD) - a rule which is severely constrained.

3.0.3. In surface structure FRCs convey more information than RRCs, as a consequence of the TAD, they stand for whole NPs (terms).

- (201) [What you bought]_{NP} = [The thing [which you bought]_{RC}]_{NP}

They "represent" the complete sequence Det + antecedent nominal + RC and are thus less "transparent" than corresponding complex NPs with RRCs. To quote Keenan [1975 : 408] FRCs "conserve less of their logical structure than complex NPs with RRCs. Because of this, FRCs are perceptually more difficult than RRCs. This is easy to understand if we remember the two variables that, according to Tannenhaus [1975] are essential in establishing how good a processing unit a (type of) clause is ; they are propositional completeness and surface markedness. Clauses that have been processed can be recoded, freeing the short time memory for further processing. Tannenhaus [1975] shows that RRCs are relatively good processing units. With RRCs, propositional completeness is secured ; the full sentence underlying the relative is reconstructed in the process of replacing the relative pronoun by its antecedent NP. Once the RC has been reconstructed, it can be encoded as a proposition since only the (referent of the) head NP will be needed to process the matrix clause.

In the case of FRCs, the situation is different. One must

reconstruct not only the underlying form of the RC but also the deleted antecedent to secure proposition completeness for the matrix. More specifically, the matrix clause cannot be processed and recoded before one has recovered those feature, which are different in the two coreferential nominals : the determiner of the antecedent and especially the function of the antecedent [gender and number features are the same], which is the same as the function discharged by the whole FRC in surface structure.

(201') Never mind, he'll give the flowers to Jane or Mary ...
or to whatever girl he is waiting for. [S : 265]

In (201') the antecedent is an IO, and hence, the FRC is an IO clause ; the relative pronoun is part of a PrepO within the FRC. It will be seen that a functional approach to the syntax of FRCs can adequately explain certain syntactic constraints on the TAD. A contrastive approach to FRCs is interesting because the constraints on TAD are rather different in the two languages and also because of the differences in the set of relative pronouns used in FRCs.

3.1. The set of relative pronouns used in FRCs only partly overlaps the set of forms used in RRCs [see 0.2 of this section]. Firstly, RRCs do not use compound forms ; secondly, even the set of simple forms are partly different.

English : RRCs : who, which ; FRCs : what (who)

Romanian : RRCs : care, ce, cît ; FRCs : care, ce, cît, cine.

At the same time, given the fact that (202 a), b) have the same underlying structure,

(202) a. Dă-mi mie ce păpușă îți place mai puțin.

b. Dă-mi mie păpușă care-ți place mai puțin.

It follows that whatever differences there are between FRCs and RRCs will arise transformationally. Among other things, at the end of the transformational cycle the feature matrix under the relative pronoun will have to be such that it allows only the insertion of the appropriate wh-words in each sentence. This problem is solved in slightly different

ways in English and Romanian.

In English, the key feature is that which, an inherently $[+ \text{Def}]$ pronoun is used only in RRCs, never in FRCs, while what a $[- \text{Def}]$ pronoun which cannot be made $[+ \text{Def}]$ by the CDT is used in FRCs, but not in RRCs. We postulate that the characteristic features for FRC pronouns are $[- \text{Def}]$ $[- \text{CDT}]$, while the characteristic features for RRC pronouns are $[+ \text{Def}]$ $[+ \text{CDT}]$; remember that which is $[+ \text{Def}]$ $[+ \text{CDT}]$.

The features $[- \text{Def}]$ $[- \text{CDT}]$ actually express the fact that wh-words used in FRCs are inherently indefinite and cannot become definite as a consequence of an anaphoric relation with the antecedent, because the latter is deleted.

In fact there is interesting evidence that these pronouns are $[- \text{Def}]$.

Thus Carlson [1977 : 520] mentions the fact that in RRCs one cannot relativize the logical subject of a sentence that underwent There - insertion.

(203) * Some man who there was on the life-raft died.

This position is accessible to relativization if the relative pronoun is $[- \text{Def}]$, since There - insertion applies only if the subject is $[- \text{Def}]$.²⁾

(204) "Nothing in this volume is quite so good as the study of Mister B's personality. What there is, however is of great interest. [Pt : 943]"

As a second argument for the indefiniteness of FRC wh-pronouns, notice that like interrogatives, and like all the other indefinites they co-occur with else.

(205) a. Distribute what else thou hast of goods to relieve whom thou hast made orphans and widows. [Pt : 918]
b. John or Mary or whoever else will be there will be happy to drive you home.

In Romanian the situation is different since one pronoun, care, used in FRCs is inherently $[+ \text{Def}]$.

(206) a. Pe care vrei să-l chem?

b. Pe acei pe care am vrut să-l chem, i-am chemat.

c. Pe care am vrut să-l chem i-am chemat.

Consequently the only feature left to distinguish between relative pronouns used in FRCs and RRCs is the rule feature $\left[\begin{smallmatrix} + \\ - \end{smallmatrix} \text{CDT} \right]$, a feature which directly depends on the presence of an antecedent. The CDT is an optional rule, if the rule is passed in the cycle the relative pronoun is marked $\left[- \text{CDT} \right]$. Pronouns used in FRCs are

$\left[\begin{smallmatrix} + \\ - \end{smallmatrix} \text{Def} \right]$, specifically care is $\left[\begin{smallmatrix} + \\ - \end{smallmatrix} \text{Def} \right]$ and the

others, cine, oricine, ce, orice etc are $\left[\begin{smallmatrix} - \\ - \end{smallmatrix} \text{Def} \right]$

Forms used in RRCs are all $\left[\begin{smallmatrix} + \\ - \end{smallmatrix} \text{CDT} \right]$, specifically

care is $\left[\begin{smallmatrix} + \\ - \end{smallmatrix} \text{Def} \right]$ and RRC ce, is $\left[\begin{smallmatrix} + \\ - \end{smallmatrix} \text{Def} \right]$. Thus

an appropriate feature specification of the matrix of the relative pronoun is one of the conditions on the rule of Antecedent Deletion.

3.2. The determiner of the antecedent. Because the antecedent is deleted with its determiner, the latter must be recoverable from the surface form of the RC in conjunction with information provided by the context. An examination of the range of RRCs that are suitable paraphrases of FRCs shows that the set of antecedent determiners that allow the TAD includes the definite article in both languages, as well as a universal quantifier which appears to be ANY in English and ORICE in Romanian.

(207) a. Alege ce rochie vrei.

b. Alege rochia pe care o vrei.

c. Ti se iartă orice greșeală ai făcut.

d. Ti se iartă orice greșeală pe care ai făcut-o.

e. Whoever breaks pays.

f. Anyone who breaks pays.

g. Quality is what counts most.

h. Quality is the thing that counts most.

i. Quality is whatever counts most.

j. Quality is anything that counts most.

In both languages the compound forms may signal an underlying universal quantifier in the antecedent.

- (208) a. Oricine vine e binevenit. a' Orice om care vine e binevenit.
 b. Whatever he studied took shape in his mind. b' Anything that he studied took shape in his mind.

But the similarity of the two languages is not complete. Romanian compound forms can be used only in contexts which imply a universal quantifier.

- (209) a... din orice firimitură dă s-aducă un nevoiaș la gură, îi snulgi peste jumătate. [Car, T : 226]
 a'... from every crumb which a poor man tries to raise to his mouth, you snatch more than half. [Car, T : 227]
 b. Imparatului i-a fost de mirare, văzind că niște golani au asemenea îndrăzneală de vin cu nerușinare să-i ceară fata, fie din partea oricui ar fi. [C : 276]
 The emperor fell to wondering that a handful of tatterdemalions should have the cheek thus brazenly to woo his daughter, be it on whomsoever's behalf. [C.T:277]

When a specific and unique referent is implicit oricine, orice etc. are not used. For instance oricine, orice etc. are excluded in the context of a [+ Past, + Non-Habitual] temporal modality of the verb [in the sense of Givon, 1973 : 108].

- (210) a. Ieri între trei și patru Ion citea un articol (articolul) orice articol pe care i-l recomandase profesorul.

The wh-ever forms are not thus restricted.

- (211) Yesterday, between three and four p.m. John had to read whatever paper (~~any~~ any paper) that teacher had recommended.

In examples like (211), wh-ever forms are the equivalent of definite descriptions, used attributively. (211) can be paraphrased as follows :

- (212) Yesterday, between three and four John had to read the paper his teacher had recommended, whatever that was.

Thus wh-ever forms signal an underlying universal quantifier (any) or a definite article used attributively.

[For an illuminating presentation of the attributive use and of its connection with any see Stampe (1974).]

- (213) a. Dear pet, don't you know that I say whatever, ... you say. [Car, T: 251]

a'. Dragă puiule, nu știi că eu zic orice zici ... mătăluță? [Car, T: 250]

b. Others, more timorous, spat into their bosoms, conjuring her to go back to whosoever had sent her. [C..T : 267]

b'. Alții mai fricoși își stupeau în sin, menind-o ca să se întoarcă pe capul aceluia care a trimis-o. [C : 66]

In contrast, the compound Romanian forms are always associated with a universal quantifier.

In both languages the simple forms will be associated with underlying structures containing the definite article in any of its uses - 'referential', 'attributive', 'generic', uses which the translation in the other language often makes more explicit.

- (214) a) Ia de mână pe cine ai la dreapta ta și fă doi pași.
[Referential use]

b) Salvatorul Tebei este cine va dezlega enigma Sfînxului.
[Attributive use]

- c) Cine seamădă vînt culege furtună. [generic use]
- d) Din ce scapă printre degetele altora poți culege o avere.
- d') You can pick up plenty from what slips between other people's fingers.
- e) Afurisiților ! Care dintre voi nu e zevzec... trebuie să fi luat seama că ... [Car, T : 220]
- e') Devils ! those of you who are not fools... must have realized that... [Car, T : 221]
- f) Pe care îl întrebi de ce a ajuns aici : "femeia" și iar "femeia". [Car, T : 220]
- f') Ask any one why he has come here, and he'll answer 'The wife' every time. [Car, T : 221]
- g) "Ai să te duci pe pămînt în ce loc ți s-o părea mai potrivit?" [Car. T : 222]
- g') "Go up on earth in whatever place you think fit." [Car.T.]

Note : with very few exception (e.g. in proverbs, after verbs like choose, like etc.) the form whoever has replaced who in all its uses in present - day English.

It is easy to see that FRCs are generated only if the DS antecedents have the right kind of determiners. If this condition is not met, RRCs cannot be paraphrased by FRCs.

- (215) a. I flunked a lot of students that I disliked. ≠
- a'. I flunked what / whatever students I disliked.
- b. He met some girls who were wearing lovely Romanian costumes.
- b'.? He met whatever girls were wearing lovely Romanian costumes.
- c) Ia fiecare ceașcă pe care o găsești în dulap și spal-o ≠
- c'. Ia orice ceașcă găsești în dulap și spal-o.

It sometimes appears that FRCs may also be paraphrased by all / toți + Definite article + noun.

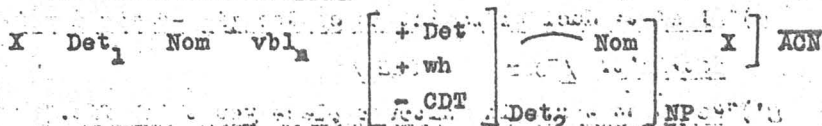
- (216) a. Take whatever apples you find in that basket.
- b. Take all the apples you find in that basket.

This paraphrase is covered by the provision that the determiner should be the definite article, there is, in fact, little difference between: Take the apples you find in the basket and Take all the apples you find in the basket ; as shown by Vendler [1967] the definite article itself presupposes the feature [+ exhaustive], which guarantees that if the order is properly carried out every apple will be taken from the basket.

The occurrence of the proper determiner in the antecedent is one of the conditions on the rule of antecedent Deletion.

2.3. We can now give a first formulation of the TAD, incorporating the restrictions on the determiners of the antecedent and of the relative NP.

(217) T Antecedent Deletion. Structural Description



Change: 1 0 0 0 6.5 683 7 8

Conditions : Det. \rightarrow any, the

A last remark concerns term 6 of the SD, that is the nominal of the relative clause.

This nominal is either a noun with full lexical content or a noun of very general sense, or pro-form in the sense of Katz Postal [1964] (e.g. E : THING, PERSON / R : LUCRU, etc.).

Nouns of lexical content are retained in the surface structure, and the wh-word continues to function as a determiner in the surface structure as well.

- (218) a. I had never looked beyond whatever single tree happened to be before my eyes. [Bth : 180]
- b. The popes of this period naturally lost whatever influence their predecessors had retained in the East. [R - 398]
- c. I said what words of comfort I could. [Pt : 918]

Note - Used as a surface determiner what is chiefly found in "amount relatives". [Carlson, 1977].

(219) a) Cu ce măsură veți măsura, cu aceea vi se va măsura. [N:151]

b) Pe mine cîți cîini m-au lătrat toți au turbat. [N : 188]

Pro-form nouns are deleted if the relative determiner is marked [+ N Deletion]. (R : ce, care, cît, oricare, orice, oricît ; English : what, whatever, whichever, whatsoever etc.) : T Noun Deletion introduces the feature [+ Pro] under the determiner node.

(220) Do what you like.

Fă ce vrei.

3.4. The TAD as described in 3.3 suitable generates FRCs in English. No further constraints are needed on the TAD.

The relative constituent may perform any function in the RC ; as in the case of the RRCs, the form of the relative pronoun indicates its function within the RC.

Subject

(221) a. Who steals my purse steals trash. [Sh]

b. Whoever calls shall be admitted. [Pt]

c. One evening of each week was set aside for the reception of whosoever chose to visit him. [Pt]

Direct Object

(222) a. [Whom a serpent has bitten] a lizard alarms. [Proverb]

b. He told the story to [whomever he met]. [Sch : 263]

c. His magic sword kills [whomsoever it strikes]. [Pt]

Note : Frequently, whoever / whosoever replace whomever / whomsoever

e.g. You may dance with whoever you like. [Sch : 264]

Indirect Object

(223) Never mind, I'll give it back to John or Henry, or

[whoever it belongs to]. [Sch : 264]

Prepositional Object

(224) a) I will teach whomever I speak with to speak civilly to me. [Sch : 264]

- b) Harrison involuntarily adopts, to a great extent, the mood and manner of [whomever he happens to flirt with.] [Bth : 27]

Attribute (infrequently)

- (225) a) Whose is the crime, the crime be theirs too. [Pt]
 b) The lovely creatures in my imagination took the form of the Matilda, Fanny or whoever's image at the moment filled my heart. [Pt]
 c) Return it to whosoever address is on the envelope.

[Sch : 265]

Predicative

- (226) For a while someone was kissing me and I proposed to [whoever it was] that we fling our glasses into the fire place. [Bth : 204]

The antecedent can likewise perform any function and any combination of antecedent function with relative constituent function is allowed [Remember that the function of the antecedent is the function of the FRC in the SS, we also specify the function of the relative constituent].

Subject clauses [the antecedent is a DS subject]

- (227) a) Whatever is is right // what may be and must be is.
 [R : 417]
 b) But I think that [what lies behind them] counts just as much. [TP : 71]

Subject clause / DO

- (228) [What he had to say] was the truth, but [what he wanted to say] was this : he didn't care two hoots, for justice and the law. [HB : 12]

Direct Object clauses

- (229) Direct Object clause / subject

Even parish priests had [what for those time was a comfortable living] [V : 80]

Direct Object clause / Direct Object

- (230) a. He deserves [what he's got] [V : 60]
 b. I've done what I can for her. [V : 118]

Direct Object Clause / Prepositional Objects

- (231) Born slurpers never are. And they can't imagine [what the poor people are talking about]. [V : 82]

Direct object Clause / Predicative

- (232) I'm a fellow American who's paying you money to find out [what the truth is] [V : 80]

Indirect Object Clause / Predicative

- (233) For a while someone was kissing one, and I proposed to [whoever it was] that we fling our glasses into the fire place. [Bth : 204]

Prepositional Object Clause

Prepositional Object Clause / Subject.

- (234) Only three were aware of [what was undoubtedly known 'down there']. [H B : 15]

Prepositional Object Clause / Prepositional Object

- (235) These people never want to talk about [what you want to talk about.] [V : 85]

Prepositional Object Clause / Direct Object

- (236) a. They were interested in alchemy, astrology, as much as in [what we should call philosophy]. [R : 424]
 b. They tried to be cynical about, [what he sold] [V : 114]

Attributive Clause / Prep. Obj. (the antecedent is a DS attribute in the Accusative.

- (237) Harrison involuntarily adopts, to a great extent, the mood and manner of [whomever he happens to flirt with] [Bth: 27]

Predicative Clauses

Predicative Clause / Subject

- (238) Sin is [what is essential to the direct relation] [R : 417]

Predicative Clause / Direct Object

- (239) He is [what we call a pervert] [V : 89]
Inside was a letter from Eliot, and this is [what it
said] [V : 88]

Predicative Clause / Prepositional Object

- (240) This law was [what the Senator thought of as his
legislative masterpiece]. [V - 181]

We have said that to properly decode complex sentences with FRCs, the hearer must reconstruct the function of the antecedent.

The examples above show that, although the syntactic function of the antecedent is not specified in the FRC itself, at the level of the complex sentence the function of the deleted antecedent is unambiguously retrievable as it is indicated by :
a) general knowledge of the role structure of the predicate, this is always helpful, the more so when the clause has been moved from its normal position (topicalized).

- (241) a. What the devil said unto him all the monks did hear.
[R : 380]
b. They do imply however that [what he says] they do.
[R : 365]

b) the position of the clause within the complex sentence :

- (242) a) [What happened] was that someone had gone off with
your bag. [P : 43] (Subject Clause)
b) 'If anyone starts fighting with me, they know/what they
got coming.]'
'I get [what you mean], yes'. [P : 48-49] (Direct
Object Clauses).

c) the preposition preceding the FRC ; this is instrumental in identifying indirect and prepositional objects.

- (243) We thought how like her expression was then to [what
it had been when she looked round at the doctor. [D : 61]

As prepositions are not fronted with the relative pronouns, any preposition preceding a FRC belongs to the matrix and marks the function of the antecedent . (see (210) above). Also as long

as prepositions are not fronted, the antecedent and the RC nominal may be governed by prepositions : He'll give the flowers to [what-ever girl, he is waiting for]. [see also (209) above]

Thus English FRCs are good perceptual units.

3.5. In this section we examine Romanian FRCs. Interesting problems arise in connection with the syntax of FRCs introduced by the case-inflected pronouns : (ori)cine, (ori)care. The task of reconstructing the antecedent is made more difficult for several morphological and syntactic reasons : a) cases are more often marked inflectionally (Gen - Dat) than prepositionally (Acc) ; b) prepositions must always move with relative pronouns (omul cu care mă lupt // ^x care mă lupt cu) ; c) speakers cannot safely rely on word order in function identifications as word order is relatively free. Consequently, the range of FRCs introduced by (ori)cine, (ori)care is severely restricted. Compare :

(244) Bestow your hand on whom you like.

(245) a. Dăruiește-ți mina aceluia pe care îl iubești.

b. ^x Dăruiește-ți mina cui îl iubești.

c. ^x Dăruiește-ți mina pe care îl iubești.

The range of (ori)cine, (ori)care FRCs is not easy to describe.

The description will involve several constraints on the rules of AD and case marking of the relative pronoun. We start by presenting the environments where the TAD is possible :

(246) The TAD applies if the antecedent and the relative NP have the same syntactic function :

Both NPs are Subjects.

(247) Na ! așa trebuie să pățească cine calcă jurământul. [C -106]
[= acela care calcă...]

Both NPs are Direct Objects.

(248) a. Doamne, dacă ești tu cu adevărat Dumnezeu, cum zici, rogu-te, blagoslovește-mă turbinca asta ca [ori pe cine oi vrea eu] să-l vîr într-însa. [C : 105] [- pe oricare sau pe care ...]
b. [Pe care nu le-o putea aduce] să le distrugă. [N : 14]

form of the relative pronoun depends on the relative clause nominal.

- (254) a. Cui i-e sortit să învingă învinge.
b. Moare cui i-e scris să moară.
c. Pe cine nu-l lași să moară nu te lași să trăiești.
d. Cui i-e frică nu trăiește cu adevărat.
(255) a. Pe cine nu suferă inima mea, acela e suflet de ciine.

Infrequently, the FRC is extraposed, if no ambiguity arises. (as in 254 b). On the other hand, Extraposition should be kept from applying to sentences like 256 a because 256 b is ambiguous and the more natural reading of 256 b is not synonymous with 256 a.

- (256) a. Oricui i-e foame cere de mâncare.
b. Cere de mâncare oricui i-e foame.

(257) The TAD can apply if the antecedent and the constituent clause nominal have different functions at some intermediate level P_n , and at an earlier stage P_{n-m} , the RC is topicalized. The form of the relative pronoun depends on the function of the common nominal in the RC. It is easy to see that if we consider only unextraposed subject clauses, cases (252 b) and (257) can be collapsed. Here are some examples:

(258) The antecedent is a Direct Object, the Relative NP is a subject.

- a. Cine se bagă în țărițe îl mănincă porcii.
(Pe acela care se bagă ...)

*Il mănincă porcii cine se bagă în țărițe.

Il mănincă porcii pe cine se bagă în țărițe.

- b. Care face una ca asta îl snopesc în bătaie.

*Il snopesc în bătaie care face una ca asta.

Il snopesc în bătaie pe care face una ca asta.

- c. Cine mă vede cu un ochi eu îl văd cu doi.

*Il văd cu un ochi cine mă vede cu doi.

Il văd cu doi ochi pe cine mă vede cu unul.

The first example in each set obeys constraint (257), the third obeys constraint (252 a).

(259) The antecedent is an Indirect Object, the Relative NP is a Direct Object. The FRC is often resumed by a demonstrative pronoun.

a. Pe cine vrea Dumnezeu să-l piardă, (aceluia) îi ia mai întâi mințile. [N : 144]

*Dumnezeu îi ia mințile pe cine vrea să-l piardă.

*Dumnezeu îi ia mințile cui vrea să-l piardă.

(260) The antecedent is an Indirect Object, the RC nominal is a subject.

a. Cine te îndrumă și te ajută, (lui) îi datorezi respect.

*Îi datorezi respect cine te îndrumă.

(261) The antecedent is a Prepositional Object, the RC nominal is a Direct Object. Reduplication by means of a demonstrative is obligatory.

Pe care-l va alege fata, după acela s-o dea împăratul.

[C : 85]

(262) The antecedent is a Prepositional Object, the RC nominal is a subject. Reduplication of the antecedent is obligatory.

(Ori)cine încearcă să mă lovească, mă lupt cu el.

The examples show that if the antecedent is a topicalized object, reduplication of the antecedent by means of an (unstressed) pronoun is obligatory. Reduplication is optional if the antecedent functions as subject. It might be objected that all the sentences (258)-(262) are instances of anacoluthon and that, as such, they are not fully grammatical. We believe, however, that such sentences should be generated by the syntax for several reasons. They are fully acceptable in what is called the 'oral style', in the sense of Cazacu [1966]. The anacoluthon has been shown to be a characteristic feature of this style [Dumitrescu, 1973]. Even if sentences (258)-(262) are stylistically marked, there is an obvious difference of grammaticality between the first and the second sentence in each of the sets (258)-(262), a difference which must be accounted for.

The situation we have outlined is particularly complex. In order to describe the domain of the TAD, it was necessary to resort to several constraints, (at least) one of which

(= 257) is a global derivational constraint. Remember that 83 b allows the TAD if topicalization had applied at some earlier stage. The rule of AD will have to incorporate these constraints.

(263) The Transformation of Antecedent Deletion (tentative form)

$\begin{array}{c} \text{[(Prep}_1\text{)] [Det}_1\text{] [Nom}_1\text{] } \xrightarrow{\text{ACN}} \text{[(Prep}_2\text{)] } \left[\begin{array}{l} +\text{Det} \\ +\text{wh} \\ -\text{CDT} \end{array} \right] \text{Nom}_2\text{] } \xrightarrow{\text{S}} \text{[S] } \xrightarrow{\text{ACN}} \text{[Nom NP PNF]} \\ \text{[}\beta\text{ case] } \quad \quad \quad \text{[}\alpha\text{ case]} \end{array}$									
1	2	3	4	5	6	7	8	9	10
Change : \emptyset	\emptyset	\emptyset	4	5	6	7	8	9	10

Conditions.

(a) $\text{[}\beta\text{ case] }_{\text{Nom}_1} = \text{[}\alpha\text{ case] }_{\text{Nom}_2}$ and either

Nom₁ and Nom₂ are not members of Prep NP_s or

Nom₁ and Nom₂ are members of Prep NP_s and

1 = 4 i.e. Prep₁ = Prep₂

(b) $\text{[}\beta\text{ case] }_{\text{Nom}_1} = \text{[} + \text{Nominative] }$ and NP₅

(c) Topicalization has already applied to the complex (Prep) NP [IO of the SD] with or without leaving behind a pronominal copy of the antecedent [1 - 2 - 3 of the SD].

Conditions (a) - (c) cover those situations where the relative pronoun is marked according to its function in the RO [(220), (226 b), (231)] case 226 a is not yet accounted for. One has to show that the relative pronoun acquires the preposition and / or inflection of the antecedent.

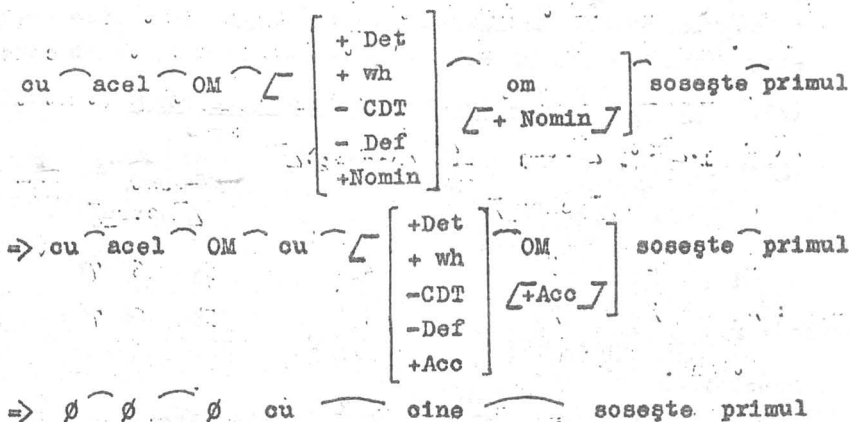
d) If $\text{[}\alpha\text{ case] }_{\text{Nom}_2} = \text{[} + \text{Nominative] }_{\text{Nom}_2}$ then :

if there is any Prep₁ copy it in front of Det₂ and

replace $\text{[} + \text{Nominative] }_{\text{Nom}_2}$ by $\text{[}\beta\text{ case] }_{\text{Nom}_1}$ and then

perform the change indicated in (263).

e.g. Plec cu cine sosește primul.



3.6. Rule (263) is quite complex and the constraints on it appear to be arbitrary. Notice that condition c) is a global rule.

We would like to suggest a simpler and more coherent account in functional terms, which illustrates the interaction of syntax with perceptual constraints and which permits the interpretation of the global rule as a 'grammatical' surface perceptual constraint.

Remember that in processing FRCs a hearer must process the RC, replacing the relative pronoun by an adequate nominal and also reconstruct the antecedent with its function. At the same time, due to morphological and syntactic factors characteristic of Romanian, the latter task is not always easy, especially when the coreferential nominals perform different functions.

The constraints on rule (263) may be viewed as alternative ways of solving the perceptual problem of properly decoding the antecedent. The first constraint (263 a) requires that the two nominals discharge similar functions. This requirement actually eliminates the perceptual difficulty; it is easy to retrieve the antecedent if it had the same function as the relative pronoun and the latter is indicated by the form of the relative pronoun; 263 a is a good illustration of what Grosu [1972] called the "grammatization" of a functional constraint: a certain perceptual difficulty or limitation is incorporated into the grammatical rule as a rule-constraint. Constraints (263 d) pinpoints a major difference between Romanian and English. In English, the relative pronoun is marked for case according to the function of the

relative NP ; in Romanian in the cases described by (263 d) the relative pronoun is marked for case according to the function of the antecedent (the relativized constituent must be a subject). Compare :

(264) a. For a while someone's kissing me, and I proposed to
[whoever it was] that we fling our glasses into the
fireplace. [Bth :]

a'. Citva timp, cineva m-a sărutat, și i-am propus
[cui o fi fost] să ne aruncăm paharele în foc.

Constraint (263 d) can easily be understood if we take into account the following perceptual principle, which appears to have been grammatized in Romanian.

(265) In imposing an initial structural description on a sentence, the hearer attempts at each successive point to close off a constituent of the highest level possible :

Principle (265) was formulated by Chapin [1972] on the basis of experimental evidence.

In accordance with this principle, in Romanian the relative pronoun is interpreted as a member of the main clause rather than of the embedded clause. Constituents of the main clause have higher rank than constituents of the embedded clause because the former command the latter.

The perceptual principle is grammatized and this explains the fact that the relative pronoun is marked for the function of the antecedent.

(266) Admir pe acela care / pe cine / *cine îmi place.

If (265) is grammatized, the function of the antecedent is easy to retrieve because it is explicitly coded in the relative pronoun. At the same time, the interpretation of the RC itself is not made more difficult because (263 d) applies only if the relative pronoun was the subject of the RC before (263 d) and the deletion of the antecedent operated. As is known, the subject is retrievable in Romanian, because it is included in the verb form and pronominal subjects can always be dropped in Romanian.

That (263 d) is a matter of surface parsing, not a matter of deep syntax is also supported by the existence in English of

"hypercorrect" sentences that conform to the same principle (265).

- (267) a. And it was supposed to be delivered unopened to [whomever took over the Foundation when Eliot was dead.] [V : 19]
- b. It will render faithful service to [whomsoever holds the talisman.] [K : 258]

Constraint (257), which is a global constraint can also be explained away on the basis of the same perceptual principles. In understanding what is going on in cases described under (263 c), one must retain the crucial fact that speech is linearly processed, clause by clause, and that a processed clause is at least partially recoded before proceeding to the analysis of the next clause. Consequently a topicalized object clause (237), as well as an initial subject clause (252 b) is processed and recoded before the main clause is analysed. The relative pronoun is interpreted within the embedded clause and is marked according to its function in the RC ; the RC is processed before the closure principle that accounts for cases 263 d has a chance to apply ; i.e. before the relative pronoun is in a position to be (re)interpreted as a member of the main clause. Compare :

- (268) a. Cine cîstigă lupta îi dau fata.
- b. Îi dau fata cui / cine cîstigă lupta.

Functionally speaking 257 b, when the antecedent is a subject and 263 c where the antecedent is topicalized behave alike, because in both instances the RC is processed before the matrix, due to its position in the linear string. The missing antecedent is retrieved using other means : either it is a subject included in the verb form or it is a topicalized object reduplicated by a personal and / or a demonstrative pronoun, which indicates the antecedent's function.

- (269) a. Cine se bagă în tărîțe îl mîncîcă porcii.
- b. Pe care-l va alege fata după acela s-o dea împăratul.
- c. Pe cine vrea Dumnezeu să-l piardă, aceluia îi ia mai întîi mințile.

Reduplication may occur even for subject clauses, within more general tendency of Romanian. [Teodorescu, 1969]

- (270) a. Pe cine-l dor picioarele, acela nu dansează.

- b. Care cal a venit la jăratec, acela are să te ducă la împărăție. [C : 41]

At the same time, the explanation implies that the rules of topicalization and AD are unordered with respect to each other ; both are post-cyclic rules and the analysis suggests that AD may apply either before or after topicalization. Consider the following examples :

(271) a. Cine sosește la timp îi dau un premiu.

b. Cui sosește la timp îi dau un premiu.

In the derivation of (271 a) Topicalization applies before the TAD so that the relative pronoun is marked according to its subject-function in the RC (by 263 c). In the derivation of (271 b) the order is reversed : the TAD applies before Topicalization and then the TAD obeys constraint (263 d) so that the case feature of the antecedent is copied on the relative pronoun ; the antecedent is deleted and only after that is the clause topicalized.

Notes.

1. On the underlying subject of There-Insertion sentences, see Ross (1974).

2. These tautological constructions are often associated with quantitative or with evaluative conversational implicatures :

Guțu Romalo [1960 : 487] and Iordan [Stilistica : 262] comment on constructions of type V_1 fi V_1 , V_1 de V_1 , illustrated by :

Merge el cît merge pînă ajunge acasă la moșneag.

Mai trece ce mai trece.

According to Guțu - Romalo, "aceste construcții au o valoare aspectuală ; ele exprimă durată, dar o durată scurtă". Structures with cît convey not only the idea of "little amount" (or rather "less than expected") but also the idea of "more than expected", "more than normal".

După ce ai mîncat cît ai mîncat, nu mă mir că te doare stomacul.

După ce ai mers cît ai mers, nu mă mir că ești obosit.

As already mentioned, such tautological constructions may also be evaluative, expressing a favourable or unfavourable judgement of a situation.

Nu uita că sînt cine sînt.

Din partea mea, mîncarea-i numai o şagă, băutura mai este ce este.

Cînd ai ajuns ce ai ajuns, ești bucuros să ai ce mînca.

A. Non - Restrictive Relative Clauses [= NRRCs]

0.1. Preliminaries. NRRCs belong to the larger group of non-restrictive modifiers. The difference between restrictive and non-restrictive modification, which is semantic in nature, is defined as follows in Quirk [1972 : 858] : "The head can be viewed as a member of a class which can be linguistically identified only through the modification that has been supplied (restrictive). Or the head can be viewed as unique or as a member of a set that has been independently identified (for example, in a preceding sentence); any modification given to such a head is additional information which is not essential for identifying the head, and we call it non-restrictive." Compare:

- (1) a. There is the driver who overtook us five minutes ago. [Cl:53]
- b. The driver, who was very young, had only just got his licence. [Cl : 53]
- (2) a. The guests who were not very fond of music, were glad that the performance had been cancelled. [RRC]
- b. The guests, who were not very fond of music, were glad that the performance had been cancelled. [NRRC]

As the second pair of examples shows, RRCs and NRRCs have different entailments : (2 a) entails that only a part of the guests were happy about the performance being cancelled, namely, those who were not very fond of music; (2 b) entails that all of the guests were not fond of music, so that all were glad that the performance had been cancelled.

0.2. Older and more recent studies customarily mention the existence of several sub-classes of NRRCs, delimited on semantic grounds.

An important distinction was made by Jespersen (II, 109-114) who speaks of "appositive" [= Ap RC] and "continuative" [= CRC] clauses.

According to him, CRCs are "added after what might have been the end of the whole sentence; and instead of them we might as well have had a separate sentence with and, and a following personal pronoun ; w. they often contain time indications such as then, immediately, presently". His examples are (3 a - b).

- (3) a. The mother pushed me towards the child, who seized me by the middle.

- b. He had seen my aunt give the person money outside the garden rails in the moonlight, who then slunk away and was seen no more.

As to AprCs, Cole and Ziv [1974, 1975], who take over Jespersen's classification, say that their most significant feature is that they stand in a very loose semantic relation with the matrix. "There seem to be weak contextual requirements on the relevance of the appositive to the main assertion of the sentence in which it is embedded". [1974 : 776]

Cole and Ziv [1974, 1975] add the following regarding the syntax of AprCs and CRCs.

a) Continuatives - which bear some logical (often causal or temporal) relation to the matrix sentence "and which can serve as appropriate continuations to the matrix" - always occur in sentence final position.. Thus, according to Cole and Ziv (1974) only (4b) below is a CRC, implying a causal relation.

- (4) a. John, who by the way, I'll never invite to a party again, really bothered me at the party last night.

- b. John really bothered me at the party last night, who by the way I'll never invite to a party again.

b) CRCs can be extraposed (e.g. 4 b), while AprCs cannot.

- (5) a. A boy, whom I had never seen before, was trying to break in. [Cole - Ziv, 1974 : 777]

- b. ?? A boy was trying to break in, whom I had never seen before. [Cole - Ziv, 1974 : 777]

Taking into account, these differences Cole and Ziv [1974] suggest that CRCs should be derived from coordinate sentences, while AprC should be directly generated under NP nodes. The semantic distinction between AprCs and CRCs is treated as a syntactic difference, set up at DS level:

0.3. Romanian grammarians (e.g. GA vol. II, Carabulea [1959]) make a distinction between "descriptive attributive clauses" and "adverbial attributive clauses" (= attributive circumstantial). (This dichotomy overrides the classification into RRCs and NRRCs) (in Romanian terminology : atributive izolate și neizolate. We have retained only those aspects of the description

which bear on NRRCs).

While the category of descriptive attributives coincides with that of APRC (in the sense of Cole and Ziv supra), the concept of 'adverbial RC' [= AvRC] is not found in English grammars, although it is sometimes mentioned that some NRRCs approach in meaning certain types of adverbial clauses [e.g. Poutsma, II 641]

Carabulea [1959] gives the following description of AvRC :

"1. O atributivă este circumstanțială dacă are legătură cu verbul propoziției regente.

2. Din punct de vedere sintactic, atributive este legată de un substantiv din regentă, cit și de verbul regentei față de care exprimă un raport circumstanțial. In acest caz, propoziția atributivă are valoare și subordonare dublă.

3. In ce privește aspectul sintactic, trebuie remarcat că elementul formal al legăturii atributivei circumstanțiale cu determinatul este topica, pentru legătura cu verbul propoziției regente, nu există nici un fel de marcă gramaticală, sensul fiind singurul mijloc de delimitare".

Remark : Taken together, statements 2 and 3 appear to be contradictory ; 2 implies that the NRRC is syntactically governed by the matrix verb, while 3 explicitly denies that by stating that the connection with the matrix verb is purely semantic.

4. Cu excepția celor de timp și de loc toate categoriile de circumstanțiale ... pot fi atributive circumstanțiale. Cele mai frecvente sînt atributivele circumstanțiale cauzale (ex. 6) și concessive (ex. 7).

(6) Ioan Vodă își puna nădejdea în popor, care se sculase de pretutindeni la chemarea mării sale.

(7) Ti-e drag să trăiești cu un om care se poartă cu tine ca un cîine, și mă gonesti pe mine, care te iubesc".

Remark. The notions of CRC and AvRC are partly alike in that both imply a relatively close semantic connection between the matrix clause and the RC.

In the present work, differences between APRCs, CRC and AvRC will be analysed as semantic - pragmatic differences exclusively.

1. The Categorical Status and the Underlying Structure of NRRCs.

1.0. More recent research has shown that NRRCs differ from RRCs

not only semantically, but also from the point of view of their syntax, in the following ways.

1.0.1. At the phonological level, NRRCs are linked to their antecedent by unity of intonation contour and by continuity of the degree of loudness. In contrast, RRRCs are characterized by a fresh intonation contour and a change (especially diminution) in the degree of loudness. RRRCs are normally separated from the antecedent by a comma in written materials.

(3) a. Si craiul acela mai avea un frate mai mare, care era impărat într-o altă țară mai îndepărtată. [C : 42]

b. He asked to be allowed to leave the answering of that question, which was very complicated, to the witness Hall. [H.B. : 20]

1.0.2. Only RRRCs can modify certain antecedent categories like, proper names, first and second person personal pronouns.

(9)a). să ne dați cât se poate mai multă mâncare și băutură, și se Setilă, căruia îi lăsa gura apă.

b) Lieschen Grühl, whose blonde hair and pale skin had been as famed as her serene piety, who was still spoken of as 'our golden angel', had had only one child. [H.B. : 20]

1.0.3. Certain determiners of the antecedent normally prevent the occurrence of RRRCs. Ross [1967 : 135] mentions the following list for English : any, all, every, each, no, some.

10) ^{Any}/_{NO}/^{Every} student, who is wearing socks, is a swinger. [Ross : 135]

In fact there are environments where some/a occur with RRRCs ; these environments are a subset of, if not the same as, the environments where some / a are [+ specific], i.e. where some / a entail the existence of their referents [see also : paragraph 7 below].

(11) a. So far, some Bicentennial officials, [who had anticipated great multitudes of customers] have confessed to some disappointment over what they consider a poor showing.

[Time /76 : 24]

b. Pelagius was a Welshman, whose real name was Morgan, which means "man of the sea". [R : 364]

In Romanian too, there are antecedent determiners which preclude the occurrence of NRRCs : nici un /o, oricare, orice, fiecare.

Thus, it looks as if in both languages the determiners that usually exclude NRRCs are indefinite, universal non-collective determiners.¹⁾

1.0.4. In contemporary English, a further distinction between RRCs and NRRCs, is that the latter cannot be introduced by that.²⁾

(12) Cats that scratch are nasty.

*Cats, that scratch are nasty.

Properties 1.0.1 - 1.0.2. in conjunction with the meaning of NRRCs suggest that, at least at the end of their derivation, NRRCs must be viewed as NP modifiers (= phrases of category NP /NP), not as common noun modifiers (= Nom/Nom phrases). Thus the correct parsing of (13) is (14), which allows for the correct entailments (= 15), and the desired phonological bracketing :

(13) These gargantuan murals, which used to be thrown away, are suddenly being bought up by European museums. [Time J.76:43]

(14) $\left[\begin{array}{c} \text{NP} \\ \left[\text{These gargantuan murals} \right], \left[\text{which used to be thrown} \right. \\ \left. \text{away} \right] \end{array} \right] \text{ are suddenly being bought up by European museums.}$
NP/NP NP

(15) These gargantuan murals used to be thrown away.

Depending on what underlying structure is assigned to NRRCs, they will appear as basic or as derived NP/NP constituents.

1.1. With respect to the underlying structure of NRRCs, there are three current positions :

1.1.1. NRRCs originate in NP nodes. Under some of these analyses NRRCs and RRCs have the same DS, with differences between them captured transformationally. An example is the analysis proposed in Smith (1964), where both types of RCs are introduced under the determiner node. $\text{NP} \longrightarrow \text{Det} \sim \text{N}, \text{Det} \longrightarrow \text{Art} \sim \text{S}$. This analysis can elegantly state the co-occurrence restrictions between determiners and NRRCs, mentioned in 1.0.2. The analysis is undesirable from our point of view because NRRCs and RRCs differ semantically even when semantic analysis is restricted to truth functional semantics ; thus in a given situation (16 a) may be true, while (16 b) is false :

(16) a. Am vorbit cu toți studenții, care păreau nemulțumiți.

b. Am vorbit cu toți studenții care păreau nemulțumiți.

The same structural configuration would be associated with different IL translations, a situation which violates the requirements of the translation relation.

On the other hand, it has been shown that it is possible to assign different underlying structures to RRCs and NRRCs, even when both originate in NP nodes, for instance by using the following PSRs (first presented in Dean (1967)) :



1.1.2. A second position is that NRRCs originate under an adverbial phrase node [See, for instance, Tufescu (1973:185-186)]

1.1.3. A third position, which prevailed in the literature until quite recently (e.g. Ross (1967), Thompson (1971), Huddleston (1971) etc.) is that NRRCs are coordinate clauses in the underlying structure. Positions II and III are motivated by a desire to keep NRRCs and RRCs distinct at DS level, in a way which should do justice to the meaning and especially to the relative independence of NRRCs, often noticed by researchers: "Atributiva explicativă adăugînd o idee nouă, poate fi echivalentă cu o propoziție coordonată. În acest sens, atributiva explicativă constituie un tip intermediar între coordonare și subordonare". [Carabulea, 1959 : 141]. Undoubtedly, most NRRCs can be suitably paraphrased by coordinate clauses or by adverbial clauses :

(18) a. She hands it to Josh, who takes it, and looks at her questioninglly. [A Nun : 41]

b. Si el, care cunostea Alexandria foarte bine, recurge totusi la amintirile populare si la cantecele de vitejie. [I : 4]

b'. Si desi cunostea Alexandria foarte bine, el recurge totusi la amintirile populare si la cantecele de vitejie.

1.2. For reasons that will be explained below, we have adopted a variant of position I, which is syntactically more convenient.

1.2.1. A grammar which adopts positions II or III needs an ad-hoc extra rule which would optionally move the adverbial clause or a second conjunct clause under the NP node if the two Ss share a

coreferent NP. (Such a rule called Swooping or Appositive Clause Formation is formulated in Ross (1973)). Thus a grammar based on positions II or III is more complex.

Even if we ignore syntactic complexity, position II has little to recommend it because many NRRCs can hardly be paraphrased by adverbial clauses :

- (19) She is Zeeriat Aman, who claims to be 24, but is closer to 30. (Time J.1976: 40).

Position III does not suffer from this defect. Most NRRCs can be paraphrased by and structures, and if the and relation is asymmetrical (in the sense of Lakoff (1971))it can also account for 'adverbial' semantic relation holding between matrix and relative clauses.

The strongest argument in favour of position III was the fact that it was able to account for the co-occurrence restrictions holding between determiners and NRRCs. Ross (1967) was the first to notice that if the antecedent's determiner is any, every, no etc. and the NRRCs is bad, then the corresponding coordinate construction is also bad. Here is one of Ross's examples :

- (20) a. I won't vote for any man, who wears red suspenders.
b. I won't vote for any man, and he/any man wears red suspenders.

However this advantage of the coordinate structure analysis is counterbalanced by the fact that under this analysis certain classes of well formed NRRCs cannot be generated because they correspond to all formed compound sentences.

- (21) a. That John Smith, whom she mentioned in her letter, has just arrived in Chicago.
a1. ?? That John Smith has just arrived in Chicago and she mentioned him in her letter.
b. Where is that scoundrel, who has made my sister so unhappy?
b'. Where is that scoundrel and he has made my sister so unhappy ?
c. Kill that scoundrel, who has made your sister so unhappy !
c'. Kill that scoundrel and he has made your sister so unhappy !

The compound sentences are bad because they lack a common topic (= 21 a') or because they are not of the same kind (21 b', c'). One could maintain the coordinate structure analysis by making Appositive Clause Formation obligatory in those contexts where corresponding compound sentences would be bad; (assuming that we could satisfactorily delimit these contexts). But the analysis has explanatory power only if Appositive Clause Formation is an optional rule.

1.3. On balance we have chosen a variant of position I, which is the simplest syntactically, but which cannot explain why there should hold any restrictions between determiners and NRRCs.

The similarity of NRRCs and coordinate sentences will appear in the semantic translation of NRRCs.

1.4. In the present work, NRRCs are analysed as basic NP/₁ NP phrases abbreviated ANP. The category of ANP constituents includes all the types of non-restrictive modifiers, not only NRRCs. All of the bracketed constituents below are ANP phrases [Quirk, 1972 : 185].

- (22) a. This scholar, [to be seen daily in the British Museum], has devoted his life to the history of science.
 b. The cost, [including meal], is ninety francs.
 c. This question, [in comparison with others], caused resentment.

1.5. The syntax of the NRRC itself is not different from that of the RRC. Constituents such as who was tired etc. receive the same syntactic and semantic analysis in both cases. This essential similarity may be captured by introducing a rule of the form ANP → ACN. What is different is the mode of combination with the matrix, as can be seen by comparing the PSR which introduces ACNs and ANPs.

- (23) a. PS 8 b Nom → Nom (vbl ACN)
 b. PS 5 d KP → NP (vbl ANP)

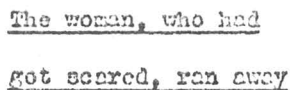
In (24) we give the translation rule corresponding to (23 b) which shows the expected similarity of complex sentences with NRRCs and compound sentences.

(24) T5 d

NP
NP vbl_n ANP

$\lambda^2 \bar{q} \bar{x}_n \llbracket \text{ANP} \wedge q \{x_n\} \rrbracket (\text{ANP})$

(25)



2. who had got scared $\Rightarrow \hat{x}_0 \int \text{'woman'}(x_0) \wedge \text{'had - got - scared'}(x_0) \int$
T (11c)

4. $\rightarrow \lambda Q \hat{P} \forall y [\neg \lambda x [\text{woman}'(x) \leftrightarrow x=y] \wedge P\{y\} \supset \{y_n \supset x_0 \supset \text{woman}'(x_0) \wedge \text{had-got-scared}'(x_0)\} y_n \wedge Q\{y_n\}] \rightarrow$

5. $\rightarrow \quad \neg Q \wedge \hat{P} \vee_y [\neg \wedge x [\text{woman}'(x) \leftrightarrow x=y] \wedge P\{y\}] / \hat{y}_n [\neg \hat{x}_0 \text{ wo-}$
 $\text{man}'(x_0) \wedge \text{had - got - scared}'(x_0)] / y_n \wedge Q\{y_n\} \rightarrow$

6. $\neg \exists x \forall y [\neg \wedge x \sqsubset \text{woman}'(x) \leftrightarrow x=y] \wedge (\hat{y}_n \sqsubset \hat{x}_0 \sqsubset \text{woman}'(x_0) \text{ had - got}$
 $\text{- scared}'(x_0)(y_n) \wedge Q\{y_n\})\{y\} \rightarrow$

7. $\rightarrow \neg Q y_v [\neg \wedge x [\text{woman}'(x) \leftrightarrow x=y] \wedge (\forall^{\wedge} \hat{y}_n \neg x_0 [\neg \text{woman}'(x_0) \wedge \text{had-got-scared}'(x_0)(y_n) \wedge Q \{y_n\}])(y) \rightarrow$

8. $\rightarrow \neg Q V_y \bigwedge x \bigwedge \text{woman}'(x) \leftrightarrow x=y \bigwedge \bigwedge \widehat{x}_0 \bigwedge \text{woman}'(x_0) \wedge \text{had} -$
 $\text{got} - \text{scared}'(x_0)(y) \wedge Q \{y\} \rightarrow$

<https://biblioteca-digitala.ro> / <https://unibuc.ro>

9. $\rightarrow \lambda Q \forall y \lambda x \lambda \text{woman}'(x) \leftrightarrow x=y \lambda \text{had - got - scared}'(y) \wedge Q \{y\} \rightarrow$ Abstraction Application

10. $\lambda Q \forall y \lambda x \lambda \text{woman}'(x) \leftrightarrow x=y \lambda \text{had - got - scared}'(y) \wedge Q \{y\}$ Elimination of Redundant Conjunct.

The last line, 10, is the translation that T (5 d) assigns to the complex NP with NRRC. From that point on, the translation of the complex sentence is routine.

11. the woman, who had got scared ran away \Rightarrow

$\lambda Q \forall y \lambda x \lambda \text{woman}'(x) \leftrightarrow x=y \lambda \text{had-got-scared}'(y) \wedge Q \{y\} \lambda \text{ran-away}'(y)$ T 10
 $\rightarrow \forall y \lambda x \lambda \text{woman}'(x) \leftrightarrow x=y \lambda \text{had-got-scared}'(y) \wedge \text{ran-away}'(y)$

Abstraction Application, Brace Convention, Down-Up Cancellation.

2.0. In the following sections we attempt to characterize the notions of AprC, CRC, and AvRC, introduced above. We assume a) that differences between these categories of NRRCs do not regard their syntactic description ; b) that differences between them do not regard their semantic interpretation (all of them are truth functionally equivalent) ; that differences between AprCs, CRCs and AvRCs can only be explained in a pragmatic description : i.e. in a description which makes crucial use of, contexts, pragmatic presuppositions, discourse factors etc.

Regarding the general structure and the tasks of the pragmatic component, we adopted the position of Gazdar-Klein [1977] where the following claims are made :

- The pragmatic and the semantic component can and should be kept separate because they perform different tasks, although both use the same mathematical apparatus. [In this respect, Gazdar's position differs from Montague's approach to pragmatics and is more in line with proposals by Stalnaker (1970, 1973, 1974), Lakoff (1972), Thomason (1974)]. The task of the semantic component is to give a recursive definition of truth, the task of the pragmatic component is to give a recursive definition of pragmatic well-formedness.

- The well-formedness of a sentence S in (a) L(anguage) is (at least) a relation between on the one hand syntactic structures

paired with semantic interpretations, and on the other, contexts [Gazdar - Klein, 1977 : 143]. This means that well - formedness may be context - sensitive, the implementation of this idea requires the introduction of transderivational constraints (in the sense of Lakoff [1974]).

In the pragmatic analysis of sentences, we will chiefly use the following concepts: 'context', 'pragmatic presupposition' (a notion which is re-interpreted), information structure,

2.1. Following Gazdar - Klein [1977 : 139] the notion of context is construed as a set of sentences of L, and formally defined as follows "If s is a function ^{from} the set of natural numbers i , such that $0 \leq i \leq n$, into P_L (= the set of declarative sentences), with values $s(i) = \psi_i$, (we will refer to s as an n -tuple, then Γ_i^s is the context at the point i , relative to the n -tuple s , where $\Gamma_1^s = \Delta \bigcup \{s(j) : 0 \leq j \leq i\}$. [p:143]. The context is defined as a set of sentences that hold or are assumed to hold in a particular speech situation, a definition which is quite close to Stalnaker's notion of context, (identified with a set of pragmatic presuppositions, and hence, with a set of possible worlds), and which has a lot in common with Hintikka's notion of model set, or Carnap's state description.

2.2. As regards the notion of pragmatic presupposition we agree with Karttunen and Peters [1975, 1977 : 1] that 'pragmatic presuppositions represent heterogeneous phenomena, and that a wide range of different things have been lumped together under this single label', a fact which caused disagreement among linguists concerning the proper analysis of 'pragmatic presuppositions'. This is why Karttunen and Peters suggest that 'pragmatic presuppositions' should be 'disbanded', i.e. divided into well-defined classes, which can be suitably described. Specifically, the two authors reinterpret (a subset of) pragmatic presuppositions in terms of Gricean implicatures [as defined in Grice (1975)].

2.2.1. Some of them are particularized conversational implicatures - i.e. inferences which arise from considerations involving :
(i) what the sentence actually says (i.e. its truth conditions) ;
(ii) the particular situation in which it is uttered ; (iii) Grice's maxims of conversational interaction.

2.2.2. Other pragmatic presuppositions appear to be generalized conversational implicatures, explainable in terms of truth conditions conversational principles and felicity conditions;

these inferences do not depend on characteristics peculiar only to certain contexts.

2.2.3. The remaining pragmatic presuppositions fall under Grice's notion of 'conventional implicature'. Conventional implicatures are inferences which simply arise from the presence in a sentence of certain lexical items (e.g. the definite article, factive verbs, but, also, even etc.) or of certain syntactic constructions (e.g. cleft sentences).

- (27) a. The King of Buganda washed his hands. There is a King of Buganda.
b. It's not Paul who wrote it. Somebody wrote it.

Conventional implicatures cannot be deduced from, or explained in terms of conversational principles in conjunction with particular features of contexts of utterance. They are part of the conventional meaning potential of given words or syntactic constructions and as such they require special listing in the lexicon and the grammar.

To accommodate conventional implicatures in Montague grammar, Karttunen and Peters [1977] extend PTQ in, roughly, the following way :

a) Each basic phrase is associated with two expressions of IL. The first, called the extension expression, is identical to the single translation provided by Montague ; this expression is the denotation of the phrase. The second IL expression, called the implicature expression, "signifies what the phrase conventionally implicates (if it is a sentence), or what it contributes (if it is smaller than a sentence) to the conventional implicatures of sentences having it as a part" [1977 : 20]. For each basic phrase, the appropriate extension and implicature expressions are listed in the lexicon with the phrase.

b) To each phrase derived by means of a syntactic rule, the paired translation rule assigns an extension expression and an implicature expressions, based on the extension and implicature of the parts it is derived from.

Karttunen and Peter's contribution is highly relevant, proving that, and suggesting how, non - truth - functional aspects of meaning can systematically be incorporated in a Montague semantic component.

We will be using Karttunen and Peter's descriptive apparatus in the semantic - pragmatic analysis of NRRCs.

2.2.4. Horn (1971), Gazdar (1975) insist that, although conventional

implicatures [= Conven Impl] and generalized conversational implicatures [= Convers Impl] are alike in that both are associated with sentences in all contexts - and, therefore, independently of contexts, it is important to keep them apart. Generalized Convers Impls, (although associated with particular classes of sentences e.g. quantified sentences, modal sentences), are ultimately derivable from some basic principles of human action and interaction.³⁾ Thus Kasher [1975 :205] suggests that Grice's conversational maxims are logically derivable from certain principles of rationality regarding the efficient use of means to achieve given ends ; (see his principle of effective means).⁴⁾ Convers Impls 'are tied-up with' certain properties of language users , pertaining thus to the pragmatics of language ; in contrast Conven Impls belong to the semantics of language.

Of the properties mentioned by Grice [1975 :57-58] in connection with Convers Impls, the following are relevant in distinguishing them from Conven Impls.

1. Convers Impls are explicitly cancellable, even in simple affirmative sentences :

(28) a. Some of the boys were at the party.

b. Not all of the boys were at the party.

c. Some, in fact all of the boys, were at the party.

(28 a) conversationally implies (28 b), yet (28 c), which is fully acceptable, contains a clause which in fact explicitly cancels the implicature. Conven Impls cannot be suspended in simple affirmative sentences.

(29) 1. *Oedipus regretted killing his father, but, in fact, he didn't kill his father.

2. Conven Impls survive questioning and also embedding in certain higher predicates ; (30 b) below is conventionally implicated by 30 a, c, d.

(30) a. Even Mary likes John.

b. Someone other than Mary likes John.

c. Tom doubts that even Mary likes John.

d. Does even Mary like John?

Convers. Impls do not survive questioning, or embedding in higher predicates which do not entail the complement sentence.

- (31) a. Only some of them came to the party.
b. Not all of them came to the party.
c. Did only some of them come to the party ?
d. Is it true that only some of them came to the party ?
e. I doubt that only some of them came to the party.
f. It is odd that only some of them came.

Thus, although (31 a) conversationally implicates (31 b), none of 31 c-e implicate it ; (31 f) does imply 31 b, but then it also entails (31 a).

3. Convers. Impls must not be truth conditions of the sentence involved. Thus if (32 b) is false, it does not follow that (32 a) is false. But, on most accounts, if (32 f), i.e. a Conven Impl is false, (32 e) is also false (or truth valueless).

- (32) a. Osmosis may involve electrolysis.
b. Osmosis may not involve electrolysis.
c. Some of the boys were at the party.
d. Not all of the boys were at the party.
e. The King of France is bald.
f. There is no King of France.

2.2.5. Conven Impls have been defined as inferences warranted by the meaning of certain words or syntactic constructions. Of those inferences which are conventionally associated with sentences, some also constitute entailments, a point which is heavily emphasized by Gazdar (1975), Wilson (1975). For instance, in affirmative sentences, factive verbs entail their complements, definite descriptions entail their referents etc. As is known, entailments cannot be cancelled.

- (33) * John managed to arrive there, but actually he didn't arrive there.

Gazdar [1975 : 60] advances the important statement that "presuppositions (i.e. conventional implicatures) can always be cancelled and that in cases - often simple affirmative sentences - where cancellation cannot take place, this is due, not to presupposition but to entailment". This seems to be the explanation for the following type of asymmetries : (Gazdar's examples).

b. Oedinus { does } regret killing his father. { and }
 { doesn't }

{ in fact }, { he didn't kill him. }
{ actually } { I don't know that he killed him. }

Conven Impls play an important part in determining pragmatic well-formedness. Pragmatic well-formedness appears to be a complex, not fully clarified concept, which should, however, include at least the familiar requirements : of 'coherence' (i) and 'progress' (Ducrot, 1972) or 'informativeness' (ii).

(1) Informally paraphrasing Gazdar-Klein [1977 : 138] we might say that a sentence ϕ_1 is well-formed with respect to a context ∇_1^S , iff for any (uncancelled) conventional implicature $\psi, \nabla_1^S \vdash \psi$.

(11) The second requirement says that a sentence ϕ_1 is well-formed with respect to a context Γ_1^s , iff ϕ_1 is informative, i.e. iff $\phi_1 \notin \Gamma_1^s$ and ϕ_1 is not a circumscription of any proposition in Γ_1^s .

Requirements (i) and (ii) hold between the intensional translation of sentences and contexts ; they will act as filters which reject certain sentences as being ill-formed with respect - to contexts ; the role of i and ii is that of transderivational constraints, which make surface syntax dependent on context.

Gazdar - Klein [1977 : 139] also suggest a definition of L-discourse, viewed as any tuple s such that every ϕ_i of s is well-formed with respect to Γ_i^s , $0 \leq i \leq n$. This (rather vague) definition throws light on the relation between context and discourse, where discourse is primarily understood as a semantic notion not as a syntactic one.

2.3. The Functional Sentence Perspective [= FSP]. The FSP

analysis considers sentences or utterances as messages, as communication units. Therefore this analysis is part of a pragmatic description of sentences, a description which brings to light other non-truth functional aspects of sentence meanings or of discourses. In line with Firbas (1964), Hajicova (1977), we will take the study of the FSP to be the study of the distribution of various degrees of communicative dynamism over the elements of a sentence, from this point of view the sentence's T(heme) is constituted by the (not necessarily initial) sentence elements carrying the lowest degree of communicative dynamism, while the R(heme) carries the highest degree of communicative dynamism.

2.3.1. At complex sentence level, the FSP study concentrates on what Danes (1970) called the thematic progression of discourse ; assuming that, in most cases, each T, as an already given element, had to be chosen from the subject matter already presented in the discourse (or from the common stock of knowledge of the participants) - the analyst must justify this contextual or contextual connection, in each case ; the thematic progression of a discourse is thus defined as the concatenation of particular themes and their connection with the text, its subparts and the situation [Danes, 1970 :]. This concatenation can be realized in different ways, which determine different discourse organizations and Danes(1970), mentions five (of the) possible organizations.

2.3.2. Not any rhematic information has the same importance for the progress of a discourse ; not any rheme of a discourse has the same degree of communicative dynamism. That is why it appears to be useful to resort to the category of discourse topic as meaning discourse subject', i.e. "some individual phenomenon, such as a physical objects, set of physical objects, a process or an event that is uniquely determined relative to a discourse". [Venneman, 1975 : 315]

In a manner of speaking, a discourse is about its discourse subjects. According to Venneman, "the term 'comment' refers to a statement involving topics. For instance, in the following discourse 'Where's John?' 'He is at home', the answer sentence is a comment on John, who is among the topics of discourse. Within a comment, I call a topic, a theme, and a non-topical predicate predicated of a topic, a rheme". [1975 : 318].

3. Appositive and Continuative Clauses. 3.0. Given the fact that the extensional translation of complex sentences with MRCS (= t (24)) involves the operator and, it is of interest to compare them with,

and compound sentences, with which they are truth-functionally equivalent.

3.1. Researchers like Keenan [1970 : 95-96], Ducrot [1972 :] pointed out that, while in an and compound sentence, both conjuncts are asserted, in complex sentences with NRRCs, the NRRCs is 'pragmatically presupposed'. Indeed, NRRCs pass all the usual tests for presuppositionhood.

3.1.1. The truth of the NRRCs is not affected by main-clause (= MC) (internal or external) negation.

- (35) The San Francisco Chinese, who are industrious are/aren't rich
- (36) Its main emotional aspect is/(is not) obsession with sin, which came later than its intellectual aspects. [R : 955]
- (37) No one, least of all his wife, [who was among the spectators] regretted Holweg's departure. [H.B. : 25]
- (38) a. The best known of them, is Harun-al-Rashid, who was a contemporary of Charlemagne. [R : 421 -]
- b. It is not true that the best known of them is Harun-al-Rashid, [who was a contemporary of Charlemagne].

When the clauses are coordinated, the negative predicate it is not true bears on both clauses as can be seen by comparing (38c) with (33 b), where only the MC was negated.

- (38) c. It is not true that the best known of them is Harun-al-Rashid, and that he was a contemporary of Charlemagne.

3.1.2. In the same way, the MC can be questioned without this bearing on the truth of the presupposed NRRC ; [examples 39 a, 40] ; in contrast interrogation bears on both conjuncts of an and structure.

- (39) a. Did the same sort of thing happen in Africa, which Justinian also more or less reconquered ? [R : 374]
- b. Is it true that the same sort of thing happened in Africa and that Justinian (also) more or less reconquered it ?
- (40) For a moment or two Breshel wondered why his boss, [who was known to be a late riser], was calling him so early in the morning. [HB : 13]

3.1.3. The truth of the NERC survives embedding in higher predicates, even when they do not entail the MC. Notice again the different behaviour of coordinate sentences.

(41) a. It is doubtful that the Browns, who are so rich, are honest.

b. It is doubtful that the Browns are rich and that they are honest.

c. The Browns are rich.

(42) a. If Mr. Smith, who is, indeed, an excellent teacher, is also willing to give you English lessons, then you'll succeed.

b. If Mr. Smith is, indeed, an excellent teacher and he is also willing to give you English lessons, then you'll succeed,

c. Mr. Smith is, indeed, an excellent teacher.

Only (41 a) and (42 a) entail (41 c) and (42 c) ; (41 b) and (42 b) do not. Here is one more example.

(43) Frau Hermes found it particularly strange that this trial take place in a county court before judge Stollfus, [who was on the point of retirement and was both-noted and notorious for his humanitarian dealings]. [HB : 10]

3.1.4. Ducrot's " loi d'enchaînement", offers yet another test for presuppositionhood. [1972 : 81]. If a complex sentence with NERCs, A, is connected to a sentence B, by means of a subordinating or coordinating conjunction, the link thus established between A and B does not concern what is presupposed [i.e. the RQ], but what is asserted.⁵⁾ [= the MC]

(44) John, who is very fat, doesn't eat caviar any longer, because he wants to lose weight.

The causal relation introduced by because concerns the assertion (John doesn't eat caviar any longer), not the presupposition (John is very fat).

Other examples :

(45) a. Gothic soldiers, [who were Arians], were sent to take possession, but fraternized with the people. [R : 333]

- b. Stollfus, [who oddly enough did not interrupt him],
shook his head several times, ignored the gesticulating
Berganoltz, [who was sitting behind the accused],
and let Kuttke carry on with his evidence. [HB : 12]
- c. Hollweg, [who was a member of the defence committee and
the press committee], had made some calls early that
morning in order to obtain a card. [H.B. : 14]

3.1.5. On the strength of these tests it can safely be concluded that the NRRC is a presupposition of the complex sentence ; thus, while and compound sentences and complex sentences with NRRCs have the same truth conditions, they differ at the level of non-truth functional semantics in that with compound sentences both conjuncts are asserted, while for complex sentences with NRRCs only the MC is asserted, the RC is presupposed. Moreover the presuppositional status of the RC does not depend on its intrasentential or sentence-final position. Thus, the RC in 46 a is final and presupposed.

- (46) a/.. but in Italy, the succession passed / (couldn't pass)
to Valentinian II, who was still a boy. [R : 356]
(see also examples (38) above)

4. However, there is an important class of counterexamples to this conclusion : specifically there is a category of sentence final NRRCs which are asserted not presupposed.

- (47) a. As far as I know, Bill gave the book to Mary, who, then,
returned it to the library, where you can find it now.
- b. I imparted the secret to Mary, who, later, disclosed it
to Paul.

The truth of the NRRC is not taken for granted, it is not background information, moreover, operators that act on the MC bear on the RC as well. In particular, the negation of the MC may render the complex sentence false or truth-valueless.

- (48) a. "Bill didn't give the book to Mary, who, (then), returned
it to the library.
- b. "I didn't impart any secret to Mary, who, later, disclosed
it to Paul.

Such examples show that the presupposition associated with NRRCs is cancellable.

Remark. The literature has signalled other cases where a normally presupposed feature becomes part of the assertion. Thomason [1975] discusses the word boy, which usually presupposes [+ male] and asserts [- adult], as in : When he told me he was going to marry, I understood he was no longer a boy. Yet there are cases when the feature [+ male] is part of the assertion, as in : Having undergone sex surgery, he is no longer a boy. Such examples were meant to show that 'linguistic' presuppositions, unlike 'semantic presuppositions' were context dependent.

For ease of reference we will call presupposed NRRCs, Ap-positive RCs, to distinguish them from asserted NRRCs, which we call Continuative RCs.

5. Given the cancellability of the presupposition associated with NRRCs, one should decide whether in the framework sketched in section 2, this presupposition should be regarded as a Conven or a Convers Implicatures. An examination of the five features which according to Grice [1975] are jointly necessary for an implicature to be considered conversational rather than conventional, shows that the NRRC cannot be analysed as a conversational implicature.

(1) A Convers Impl. must not be part of the literal meaning of the sentence to which it attaches, but the NRRC is certainly part of the meaning, though not part of the assertion of the complex sentence.

(2) A Convers Impl. must be context - sensitive and cancellable in particular cases either by the context making it clear that it is inapplicable or by the addition of a clause denying the implicature. The existence of CRCs shows that the implicature is cancellable, hence context sensitive ; this is *prima facie* evidence for analysing the NRRC as a Convers Impl. But notice that the NRRC cannot be explicitly cancelled (compare examples (28) in section 2, above).

(49) *John, who is my brother, is smart, but in fact he isn't my brother / I don't know that he is my brother.

(3) A Convers Impl must be "non-dotacheble", i.e. it must not be possible to substitute some other expression which means roughly the same thing, except in so far as it lacks the implicature. But in the case of NRRCs, it is possible to use a synonymous construction - namely, the and coordinated structure - which means the same thing but lacks the implicature.

(52) 1. failed to win \Rightarrow \langle failed - to - win⁰, failed - to - win¹ \rangle
 $\Rightarrow \langle \hat{x} \sim \text{win}^0(x) ; \hat{x} / \neg \text{try} - \text{to}^0(x, \hat{x} \text{win}^0(x)) \vee \forall y \text{ expect} - \text{that}^0(y, \hat{x} \text{win}^0(x)) \wedge \text{win}^1(x) \rangle$

Remark. With Karttunen (1977) we assume that if somebody is said to have failed to do something, the implicature is either that he tried to do it or that somebody else expected him to do it.

2. who failed to win \Rightarrow \langle who - failed - to - win⁰, who - failed - to - win¹ $\rangle \Rightarrow (x_1 \sim \text{win}^0(x_1) ; x_1 / \neg \text{try} - \text{to}^0(x, \hat{x} \text{win}^0(x_1)) \vee \forall y \text{ expect} - \text{that}^0(y, \hat{x} \text{win}^0(x_1)) \wedge \text{win}^1(x_1))$

3. John \Rightarrow \langle John⁰, John¹ \rangle , where John⁰ \Rightarrow $\hat{P}P\{\hat{j}\}$.

John¹ \Rightarrow $\hat{P} \text{ male}_{\#}(\hat{j}) \{ \text{value of } \hat{k} : \hat{P}P\{\hat{j}\} \}$ [Karttunen, 1977 : 63]

4. John who failed to win \Rightarrow

\langle John - who - failed - to - win⁰ ; John - who - failed - to - win¹ \rangle
value of $\hat{k} : \text{John}^0 \Rightarrow \hat{P}P\{\hat{j}\}$

5. John - who - failed - to - win⁰ $\Rightarrow \hat{P} \hat{Q} \hat{P} \{ \hat{y} / \neg \hat{x}_0 \sim \text{win}^0(x_0)(y) \wedge \hat{Q} \{ \hat{y} \} \} (\hat{P}P\{\hat{j}\}) \Rightarrow \hat{Q} \hat{P}P\{\hat{j}\} (\hat{y} / \neg \sim \text{win}^0(y) \wedge \hat{Q} \{ \hat{y} \}) \rightarrow \rightarrow \hat{Q} \wedge \hat{P}P\{\hat{j}\} (\hat{y} / \neg \sim \text{win}^0(y) \wedge \hat{Q} \{ \hat{y} \}) \rightarrow \hat{Q} \wedge \hat{y} / \neg \sim \text{win}^0(y) \wedge \hat{Q} \{ \hat{y} \} \rightarrow \hat{Q} / \neg \sim \text{win}^0(y) \wedge \hat{Q} \{ \hat{j} \}$

6. John - who - failed - to - win¹ \Rightarrow

$\Rightarrow \hat{Q} (\text{John}^1(\hat{Q}) \wedge \text{John}^0(\text{who - failed - to - win}^1) \wedge \text{John}^0(\text{who - failed - to - win}^0)) \rightarrow \hat{Q} (\hat{P} \text{ male}^0(\hat{j})(\hat{Q}) \wedge \hat{P}P\{\hat{j}\} (\hat{x}_1 / \neg \neg \text{try} - \text{to}^0(x_1, \text{win}^0(x_1) \vee \forall y \text{ expect} - \text{that}^0(y, \hat{x} \text{win}^0(x_1)) \wedge \text{win}^1(x_1)) \wedge \hat{P}P\{\hat{j}\} (\hat{x}_1 \sim \text{win}^1(x_1))) \rightarrow \rightarrow \hat{Q} / \neg \hat{P} \text{ male}^0(\hat{j})(\hat{Q}) \wedge (\hat{x} / \neg \neg \text{try} - \text{to}^0(x_1, \hat{x} \text{win}^0(x_1) \vee \forall y \text{ expect} - \text{that}^0(y, \hat{x} \text{win}^0(x_1)) \wedge \text{win}^1(x_1)) \{ \hat{j} \} \wedge (\hat{x}_1 \sim \text{win}^1(x_1)) \{ \hat{j} \} \rightarrow \rightarrow \hat{Q} (\hat{P} \text{ male}^0(\hat{j})(\hat{Q}) \wedge \neg \neg \text{try} - \text{to}^0(\hat{j}, \hat{x} \text{win}^0(\hat{j}) \vee \forall y \text{ expect} - \text{that}^0(y, \hat{x} \text{win}^0(\hat{j})) \wedge \text{win}^1(\hat{j}) \wedge \sim \text{win}^0(\hat{j})))$

Thus the complex NP, John, who failed to win implicates that John is male, that he tried to win or was expected to win, and that he did not win, a result which is intuitively satisfactory.

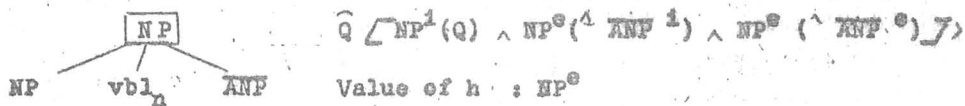
6.2. In section 2 we mentioned a pragmatic well-formedness condition on sentences, stipulating that a sentence is wff with respect to

(4) The implicature must not be a truth condition of the sentence involved. But again, T (24) shows that the truth of the NRRC is part of the truth conditions of the complex sentence.

6.0. We will assume then, that complex sentences with NRRCs differ from and compound sentences in terms of a Conven Impl - suspended under conditions to be dealt with further. This analysis is consistent with the theoretical framework, which proposes that Conven Impls are typically associated with either lexical items or specific syntactic constructions. The Impl is a semantic effect of the particular mode of construction which is the NRRC, and it will have to be part of the translation corresponding to the phrase structure-configuration which generates NRRCs.

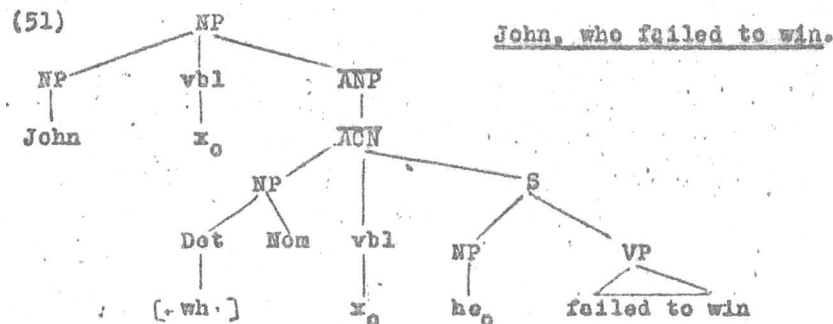
(50) T (5a) (reformulated to include not only the extension expression, but also the implicature expression and the value of the heritage function)

New T (5d) $\langle \hat{p} \hat{q} [\hat{p} v b] [\hat{A} N P^0 \wedge q \{ v b]] I (\hat{A} N P^0) \rangle$



The first member of this ordered pair, identical with the old T (5 d) gives the extension (truth conditions) of the phrase ; the second member gives the implicature expression, constituted of the implicatures of the head (= NP¹), the implicatures of the RC (= NP² (^ ANF¹)) and the implicature of the complex (boxed) NP, that is the statement which is implicitly made by the RC (= NP² (^ ANF²)).

6.1. Consider the following (abridged) illustration :



a context only if the latter entails its Conven Impls.

Accordingly a sentence containing a complex NP with a NRRC is wff only if the following relation obtains.

(53) $\Gamma_1^s \models \text{NP}^0(^1\text{ANP}^1) \text{ NP}^0(^1\text{ANP}^0)$, where Γ_1^s is a context and 1 is the discourse slot (or the index of the proposition) preceding the complex sentence with NRRC.

Relation (53) says that Γ_1^s entails the RC and also all the conventional implicatures of the RC, the RC is assumption explicit with respect to the preceding context/discourse which is not incremented by the assertion made in the MC. This might be viewed as an aspect of the relative independence of the MC and RC respectively.

Thus (54 a) below is acceptable only if $\Gamma_1^s \models$ (54 b).

- (54) a. The Carthusians, who ceased to be austere, were founded by Bruno of Cologne in 1084. [R - 411]
 b. The Carthusians used to be austere.

6.3. We can tentatively define AprC as NRRCs, which are pragmatically implicated.

6.4. Differentiating coordinated sentences from complex sentences with NRRCs, the implicature has to do with the difference between coordination and subordination as regards then discourse function. The role of the AprC can best be understood at the level of the thematic organization of a discourse, at the level of what Grimes [1975 : 323] calls 'staging'. At least two relevant remarks can be made from this perspective.

The first concerns the functional use of subordination. According to Grimes [1975 : 327]: "given a collection of propositions that are interconnected by shared reference, the speaker's decision about what is, so to speak, front and center on the stage, and what is present in a secondary way is a thematic decision... Looked at in this way staging concerns much more than grammatical topicalization [324]. The whole dimension of structural coordination and subordination seems to be related to the concept of staging as much as to the organization of content... It is quite possible that both cohesion and staging, though ultimately not dependent on content structure are projected on it".

Given what Grimes says, the AprC appears to be a syntactic means of backgrounding information.

The second important remark concerns the relation between the AprC and the topic of the discourse.

Within the RC, the relative pronoun always functions as a theme ; it has the lowest degree of CD, a natural consequence of its being an anaphoric , context bound element.

Remark. In this, the RC follows a more general pattern, discussed by Grimes [1975 : 328], who notices that in dependent clauses, the relator is the unmarked theme, but secondary thematic options are also available within the clause.

The rest of the RC is rhematic with respect to the relative pronoun. The most important characteristic of the rhematic information contained in the AprC is that it is not a comment, or rather it is not presented as being a comment on the topic of discourse. The thematic progression of the discourse is independent of the AprC. Examples will make this point clear.

Consider the following descriptive sequence - where the topic of discourse is, obviously, 'characteristics of the lark'.

- (55) A. What are the particular characteristics of the lark ?
B. a. The lark has a very sweet song. It builds its nest on the ground.
b. The lark, which builds its nest on the ground, has a very sweet song.

If two independent sentences are given in the answer (55 B a), both of them relate to the topic ; both properties expressed in the rhemes are 'particular characteristics of the lark'. In contrast, in (55 B b) only the MC can be considered relevant for the problem talked about. The AprC belongs to a different level of discourse structure.

Similar remarks hold for narrative sequences (chains of events). As in the preceding case the topic of discourse may be contained in a question, in an introducing or summarizing sentence etc.

- (56) A. Then something funny happened.
B. a. Jack gave Sam a blow on the head. Sam went down and started squeaking.
b. Sam, who Jack had given a blow on the head, went down and started squeaking.

Using x for an event variable, standing for the discourse topic, we have the following discourse organizations for sequences 56 Ba, b.

(57) Ba (the x) $\left[\left[x = p \wedge q \right] \wedge \text{funny} (x) \right]$

Bb (the x) $\left[\left[x = p \right] \wedge \text{funny} (x) \right]$

To conclude, from the FSP point of view, the AprC has a very low degree of CD and it is not a comment.

6.4. In its capacity of discourse Conven Impl the AprC functions as an element which increases discourse coherence by securing a certain degree of permissible redundancy. Ducrot [1972 : 82] has shown that although discourses must obey a condition of progress (alluded to in section 2), which requires each sentence to bring in new information, it is considered normal to repeat 'un élément sémantique déjà présent dans le discours antérieur - pourvu qu'il soit repris sous forme de presupposition'.

However, it is important to understand that the fact that the AprC is presented as conventionally implicated does not prevent it from conveying new information (to the decoder). Gazdar [1975 : 34] stressed that "it is perfectly acceptable to convey new information in presuppositional form, the only change in the theoretical definition is that pragmatic presuppositions (= Conven Impls) need not be entailed by the context, but merely consistent with it.

Remark : The difference between entailment and consistency is defined as follows (in Gazdar (1975)) :

A sentence S is entailed by a set of sentences Γ , just in case S is true in every possible world in which all members of Γ are true.

A sentence S is consistent with a set of sentences Γ , just in case S is true in some possible worlds in which all the members of Γ are true. Accordingly relation (53) would become.

(53) $C_n \left(\bigvee_1^s, NP^e(\overset{1}{\text{ANP}}^i) \wedge NP^e(\overset{1}{\text{ANP}}^e) \right)$, where C_n = consistent.

The use of the NRRC is, in part, a matter of conversational strategy. The speaker lets the hearer distinguish between 'hot news' and not so 'hot news'. In using a complex sentence with AprC the speaker shows uncertainty as to whether the hearer already knows the fact mentioned in the NRRC; he apparently wants to avoid telling something as 'hot news' which is already known to the hearer thus violating the condition of progress mentioned above. One can avoid

treating the hearer as uninformed by embedding the respective proposition as an ApRC, thereby indicating that the proposition is supplementary information, recalling an old fact, which does not belong to the intended message. In Gricean terms, the speaker avoids being either underinformative (in case the proposition is not part of the common ground for the hearer) or overinformative (by asserting a presupposed fact), thus observing the maxim of quantity.

6.4. We conclude this section by illustrating some of the typical situations where the NRRC is used.

6.4.1. In a narrative discourse, the ApRC often provides a descriptive background for the events, giving collateral facts or information on the participants.

- (58) a. He kissed the hand of his hostess, who was yawning, and begged to be excused. [HB]
- b. Grühl senior, [who gave his first name as Johann and his age as 50], said that he wanted to say something which he hoped, His Honour, [whom he knew and admired], would not hold against him. [HB : 17]
- c. Si înălțimea voastră să aibă gînd bun și mină slobodă, ca să ne dați oit se poate mai multă mîncare și băuturică, zise Setilă, căruia îi lăsa gura apă. [C : 99]
- d. Fata, [care știa că de făcut treabă nu mai cade cînda nimănui], își suflecă mincile, oalcă lut și lipi cuptorul. [C : 112]

6.4.2. In descriptive sequences, the ApRC may often, mention a non-commental property of the object under consideration.

- (59) a. The Philippines best art director is Joseph E, who in real life is manager of San Joan. [Time, June 1968:43]
- b. Frau Schorer - [who liked him]- was related to him through his mother. [H.B. : 18]
- c. Dar dacă fiarele pot redeveni mai bune, omul, [care poate fi fiara cea mai rea dintre toate], este însă tot ce poate fi mai bun printre puil Doamnei celui mari. [N : 122]

6.4.3. The ApRC may contain its own performative marker, different from the (implicit or explicit) performative of the MC. The RC illocutionary force may be indicated by a vdrb or adverb.

- (60) a. The book, which I promise to return soon, is on the shelf.
b. The girl, who, frankly, he liked, left the room blushing.
c. Ion, care îți jur că ă cinstit, se afla la mine la ora furtului.

Remark. According to Thorne [1972], RRCs cannot have an independent illocutionary marker.

6.4.4. The RC has what might be called a metatextual function - it makes a comment on the organization of the discourse.

- (61) a. One of the favourite personalities in the public life of our town, County Court Judge Dr. Stollfous, [who will be duly mentioned in a substance issue], conducted the trial of Johann and Georg Grühl. [H.B. 1]
b. Si aceste două sirboace, a lui Neagoe Basarab, de o parte, Milita, [de care va fi vorba in capitolul următor] și Elena Ecaterina a lui Petru Rareș, de cealaltă parte, au adus revoluția literară de atunci. [I : 62]

6.4.5. Infrequently, the RC may be enclosed in parantheses or flanked by dashes, used as graphic devices which suggest the 'paranthesical' nature of the information contained in the RC.

- (62) a. Irene, (who used to call herself emperor, not empress), was a usurper. [R : 410]
b. Atunci iedul cel mic - care acum era și cel dintii și cel de pe urmă - sare iute și-i deschide ușa. [C : 30]

7.0. We must now turn to situations where the NRRRC loses implicature status and becomes part of the assertion, on a par with the MC. As mentioned in paragraph 4, we use the term continuative RC [= CRC] to designate asserted NRRRCs.

7.1. The implicature (in fact one of the implicatures) assigned by T (5 b) to complex sentences with NRRRCs is filtered away only in certain pragmatically definable situations, which it is now incumbent on us to describe. Consider the following sets of sentences :

- (63) a. Eric gave the book to Mary, who, then, returned it to the library.
 b. Mary returned the book to the library.
 c. Mary was in possession of the book (before returning it to the library, i.e. say at time t_1).
 d. Eric gave the book to Mary (at time t_1 t_1).
 e. *Eric didn't give the book to Mary, who, then, returned it to the library.
- (64) a. Under the next Pope, there was a dispute with the Emperor, in which the Pope was ultimately victorious.
 [R : 415]
 b. The Pope was ultimately victorious in the dispute with the Emperor.
 c. Under the next Pope, there was a dispute with Emperor.
 d. *Under the next Pope, there was no dispute with the Emperor, in which the Pope was ultimately victorious.

In each set, sentence b is an implicature of the complex NP with NRRC, according to translation rule T (5 d) ; however, sentence b cannot be true unless sentence c is also true ; but sentence c is either the MC itself (as in (64 c)) or an entailment of the MC (as in (63 c)). It follows that the truth of the MC is a condition for the truth of the RC ; as examples (63 c) and (64 d) show, when the MC is false, the complex sentence is semantically ill-formed. In that sense the CRC 'depends on or' is closely related to the MC. The implicature suspension can be explained in the manner suggested by Gazdar [1975], by showing that it cannot hold in certain contexts.

Consider sentence (63 a) again, with its implicature 63 b. Suppose that sentence 63 a occurs after discourse slot 1, in a context Γ_1^s , so that the MC (63 d) and the RC (= 63 b) are respectively indexed j, k by function s. (Remember that the CRC must be clause final). If the RC_k (= 63 b) is implicated then according to (53), we ought to have :

$$(65) \quad \Gamma_1^s \models (63 \text{ b})$$

If (65) holds then in all the context worlds $w_1 \in W$ defined by Γ_1^s (63 b) is true. On the other hand, if the

discourse in which the MC occurs is pragmatically well-formed, then the MC is 'relevant' (in the sense of Grice [1973]) and 'informative'. (The discourse meets the condition of progress). If this is the case, the MC need not be true in all of the worlds $w_1 \in W$ defined by Γ_1^s . (According to Stalnaker [1974 : 11-12]). "A proposition asserted always partially overlaps the presupposition set (= the world set defined by Γ^s). The point of an assertion is to reduce the presupposition set in a certain determinate way). Consequently, Γ_1^s must be consistent (= Cn) with both MC_j and its negation, so that 66 a, b hold.

(66) a Cn (Γ_1^s , 63 d)

Cn (Γ_1^s , ~63 d)

But, as already shown, if the MC is false, the RC is also false or truth-valueless.

(67) ~63 d \rightarrow ~63 b

Thus, there is at least one world $w_1 \in W$ of the context worlds, in which 63 b is false; hence (63 b) is not entailed by Γ_1^s (i.e. (65) is false). The CRC is not entailed by the context; it cannot represent old, known information, its truth depends on the truth of MC, so that not (65) but only (68) holds.

(68) Cn ($\Gamma_1^s \cup MC_j^s$, RC_k^s) \wedge ~Cn (Γ_1^s , RC_k^s)

The implicature is thus cancelled in contexts of type (68), in favour of more general principles of conversation and discourse interpretation.

7.2. CRCs have two important syntactic properties: a) they (normally) are sentence-final (i.e. they follow the MC verb); b) they can be extraposed, while ARCs cannot (or rather extraposed NRRCs are either interpreted as CRCs, or rejected as pragmatically ill-formed). We quote again the example of Cole and Ziv [1974], who claim that (69 a) is interpreted as an ARC, contributing information which is independent of the MC, while (65 b) implies a temporal - causal connection between MC and RC.

(69) a. John, who, by the way, I'll never invite to a party again,
really bothered me at the party last night.

b. John really bothered me at the party last night, who by
the way, I'll never invite to a party again.

7.3. Unlike ARCs, CRCs, which are asserted, do represent comments, on the discourse topic ; in keeping with their, final, rhematic position, CRCs have a high degree of communicative dynamism.

(Unextraposed) CRCs, are characteristically associated with the particular thematic structure called basic elementary structure by Danes [1970] ; the R(heme)_i of an utterance U_i (= the MC) appears as the T(heme)_{i+1} of U_{i+1} (= the RC) ; each rheme becomes the theme of the next utterance. The discourse advances in simple linear progression

(70) T₁ - R₁
 |
 T₂ (= R₁) - R₂
 |
 T₃ (= R₂) - R₃

(71) The caliph's will
was absolute :he was/ was
not accompanied by an
executioner, who performed
his office at a nod from
the caliph. [R :]

(71) clearly illustrates the concept of simple linear progression ; and it also shows that the MC as well as the RC are directly related to the topic of discourse, (the absolute will of) the caliph.

7.4. The examination of the corpus revealed several more characteristic situations for CRCs. In every case, under internal negation of the MC, the sentence is ill-formed; under external negation, questioning, unbedding in higher predicates etc. CRCs, behave like coordinate sentences. i.e. the operator bears on both clause.

7.4.1. Frequently the CRC depends on an existence presupposition, which is satisfied only if the MC is true, the determiner of the antecedent is indefinite.

(77) a. Ehrlichman wrote a roman - à - clef, The Company, in which
Kissinger, under the thinnest of disguises, has taken a
second clobbering. [Time/1976 : 68]

a'. Ehrlichman didn't write any / a roman - à - clef, in which
Kissinger, under the thinnest of disguises, has taken a
second clobbering.

b. At last Pope Leo secured the summoning of an oecumenical
Council at Chalcedon in 1951, which condemned the Mono-
physites and finally decided the orthodox doctrine of the
Incarnation.

- b'. Did the last Pope Leo secure the summoning of an eccumenical Council at Chalcedon, which condemned the Monophysites and finally decided the orthodox doctrine of the Incarnation ? [R : 410]
- c. There were many / th weren't any Jews in Spain, who remained when the country was reconquered by old Christians. [R : 427]
- d. La vreo cîteva zile după asta, împăratul făcu un ospăt foarte mare în cinstea nepotu-său, la care ospăt au fost poftiți cei mai străluciți oaspeți. [C : 64]
- d'. Nu era adevărat / E ciudat că la cîteva zile după asta, împăratul a făcut un ospăt foarte mare în cinstea nepotu-său, la care ospăt au fost poftiți cei mai străluciți oaspeți.

7.4.2. In narrative texts, the NC may express a preposition which should temporally precede the RC, which is a condition or cause of the RC.

- (73) a. When the scheme failed utterly, some of them lost / th didn't lose their farms, which were bought by Mr. Rosewater. [V : 49]
- b. She hands it to Josh, who takes it and then looks at her questioningly. [A nun : 29]
- c. The two men conferred very briefly, scarcely uttering a word and looking for guidance at Hermes, [who nodded in answer]. [H.B.]
- d. Si cum iese sfînta Duminică afară, odată si pornește descoltă prin rouă, de culege o poală de somnoroasă, pe care o fierbe. [C : 60]
- e. Acestuia din urmă Făt Frumos îi retează un picior, [De care apoi i-l pune la loc], pe cînd Scorpiei, care, ca rudele omului, are mai multe capote, el îi retează unul din ele. [pe care de asemenea i-l va pune la loc] [N : 123]

7.4.3. NRRCs whose antecedent is a clause are always interpreted as CRCs.

(74) a. He charges /^x Does he charge India's cinema with being the 'aphrodisiac' responsible for his country's exploding population, which seems slightly unfair, since the birth rate was swelling long before the movies. [Time; June 1975 : 40]

b. For instance - I loved his mother more than I loved our garbage collector, [which makes me guilty of the most unspeakable of modern crimes. Discrimination. [V : 79]

8.0. Adverbial Relative Clauses [= AvRCs]. Let us first repeat, for convenience, those features from Carabulea's definition of AvRCs which we believe to be correct "O atributivă este circumstanțială dacă are legătură cu verbul propoziției regente... [Ea] este legată de un substantiv din regentă, cât și de verbul regentei față de care exprimă un raport circumstanțial". The defining feature of AvRCs is that, in their case, the MC and RC appear to express some asymmetric semantic relation, similar to that which binds main clauses with adverbial clauses. The relation is typically 'causal' or 'concessive', but other adverbial relations are also occasionally inferrable.

(75) a. He asked to be allowed to leave the answering of the question, which was very complicated, to the witness Hall. [HB : 20]

a'. He asked to be allowed to leave the answering of the question to the witness Hall, because the question was very complicated.

b. ... este acolo oglindirea unei întregi epoci războinice pe care nu putea să o cunoască acolo, în pacea minăstirii, călugărul din secolul al XVII-lea, [care nu avusese unde auzi sunete de trîmbiță și glasuri de asalt]. [I-74]

b'. ... este acolo oglindirea unei întregi epoci războinice pe care nu putea să o cunoască acolo, în pacea minăstirii, călugărul din secolul al XVII-lea, pentru că nu avusese

unde auzi sunete de trambita si glasuri de noalt.

- e. The sight of the prince in a state of nature was quite new to Father Pirone, the Sacrement of Penance had accustomed him to naked souls, but he was far less used to naked bodies, and he, [who would not have blinked an eyelid at hearing the confession, say of an incestuous intrigue], found himself flustered by this innocent but vast expanse of naked flesh. [L : 15]
- e'. ... and although he would not have blinked an eyelid at hearing the confession, say, of an incestuous intrigue], he found himself flustered by this innocent but vast expanse of naked flesh.
- d. Mi se pare mie oă si boierul, oit era de boier, luase frica turbineăi, de nu-i păru rău după Ivan, care-i făcuse atita bine. [C : 117]
- d'. ... de nu-i păru așa de rău după Ivan, ~~desi~~ acesta îi făcuse atita bine.
- e. The US has been able to lay the foundations of astonishing technical achievements and immense material progress, the like of which, no society or nation has been able to surpass. [Time J./76:43]
- e'. The US has been able to lay the foundations of such astonishing technical achievements and immense material progress as no society or nation has been able to surpass.
- f. Breshel put a cigarette in his own mouth demonstrating that his own lips, [which were not in the least protruding], did in fact, when pursed to grip the cigarette, show a certain protrusion. [H.B.]
- f'. ... although his own lips were not in the least protruding, they did in fact, when pursed to grip the cigarette, show a certain protrusion.

6.1. In our opinion, this adverbial relation is simply 'a reasonable inference',⁶⁾ which can be drawn on the basis of the common-ground knowledge. In the framework we have adopted, such inferences are best regarded as 'particularized conversational implicatures' as can be seen checking them against Grice's characteristic features for conversational implicatures.

(1) Thus, they are not part of the literal meaning of the complex sentence (which merely represents the conjunction of the MC and RC).

(2) They are context sensitive, in the sense that they arise only in certain contexts, and they can be cancelled by the addition of a clause denying the implicature. For instance the RC in (76) can be interpreted as a 'causal' RC; yet the implicature is explicitly cancellable (as in 76 c).

(76) a. The chairman, [who was beginning to get bored],

interrupted the speaker.

b. The chairman interrupted the speaker, because he was beginning to get bored.

c. The chairman, who was beginning to get bored, interrupted the speaker, though not because he was bored, but because they were running out of time.

(3) The adverbial implicature is not a truth condition of the complex sentence.

(4) The same complex sentence may be associated with different adverbial implicatures depending on the context of utterance, so that out of context the choice of which particular implicature is involved may prove indeterminate.

(77) The tongue of Nestorius, which by its eloquence had seduced so many, was eaten by worms, so at least we are assured.

[R - 369]

Some background knowledge is necessary. Nestorius was a bishop in the 11th century and he was accounted to be a saint by some and a heretic by others. He was unanimously acknowledged as a great orator, however, so that his eloquent tongue had led a great many to either sin or the divine truth. Depending on the sides the speaker is taking, there are two interpretations.

- (78) a. Because the tongue of Nestorius had seduced so many it was eaten by worms.
 b. Although the tongue of Nestorius had seduced so many, it was eaten by worms.

Of course, the use of the verb 'seduce' in the original example, more strongly suggests the first interpretation.

On the basis of (1)-(4) we conclude that the adverbial relation is analysable as a particularized conversational implicature.

The decoder's tendency of assuming that there is an adverbial relation between MC and RC (when his knowledge entitles him to infer such a relation) is probably related to Grice's maxim of quantity. The hearer assumes that the speaker is being as informative as he can, making the strongest statement possible under the circumstances.

8.2. Apart from conversationally implicating the adverbial relation, AvRCs have no other specific properties. They can be presupposed or asserted, i.e. the implicature may attach to an ApRC (as in (79)) or or to a CRC(as in (80)).

- (79) a. Hollweg, [who was inclined to be garrulous], was (was not) advised by his friends not to overestimate the events in Birclar County. [H.B.]
 b. If Hollweg, [who was inclined to be garrulous], was already advised not to overestimate the events in Birclar County, then everything is under control.
 c. Hollweg was advised not to overestimate the events in Birclar County because he was garrulous.

- (80) a. Henry retained/*did not retain throughout his reign the power of making and unmaking popes , which, however, he exercised wisely in the interest of reform. [H]
 b. Although Henry retained throughout his reign the power of making and unmaking popes, he, however, exercised it wisely in the interest of reform.

The examples show that the AvRC is conventionally implicated in (79) and asserted in (80).

8.3. A fact which has gone unnoticed is that in the asymmetric, semantic relation that binds an adverbial clause to a main clause, the RC can play 'main' as well as 'adverbial' clause ; using Carabulea's terms, the MC 'may express an adverbial relation with

respect to an assertion made in the RC'. Consider the examples below, where the main assertion is made in the RC, as proved by the presence in the RC of adverbs like however, nevertheless, which often correlate with a concessive conjunction.

- (81) a. The popes achieved independence of the Greek emperors, not so much by their own efforts as by the arms of the Lombards, to whom they felt no gratitude, however. [R]
- a'. Although the popes achieved independence of the Greek emperors by the arms of the Lombards, they felt no gratitude to them, however.
- b. He rushed her to her own apartment, and called a doctor right away, who could not save her, nevertheless. [Time June 76:52]
- b'. Although he called a doctor right away, the doctor could not save her, nevertheless.

A comparison of examples (81) with examples 75 c,d above strenghtens the conclusion that the adverbial relation is an element of content structure, largely independent of the syntactic status of the two clauses ; the latter is often a matter of 'staging' or thematic organization, or, merely a matter of syntactic convenience (as relative pronouns are handy syntactic connectors).

8.4. In this paragraph we give a simple example of the way in which the adverbial relation is reasonably inferable starting from :

a) the truth conditions of the sentence ; b) specific contextual assumptions. We examine sentence 82 a, which can be interpreted as containing a concessive RC, on the model of 82 b.

- (82) a. John, who failed to pass the driving test, didn't look unhappy.
- b. Although John failed to pass the driving test, he didn't look unhappy.

Regarding concessive clauses we can rely on the analysis of the concessive conjunction deși (although) offered by Vasiliu (1978), in the framework of a doxastic logic based on the two operators : 'Se crede, că' (It is believed that) 'It is doxastically necessary' represented in the logic as \Box_D (doxastic necessity), and Este credibil, că 'It is doxastically possible that',

represented in the logic as \Diamond_D (doxastic possibility). The required, weak senses of 'Se crede₃ că p' (\Box_{DP}) and 'Este credibil₃ că n' (\Diamond_{DP}) are given appropriate possible-worlds interpretation in Vasiliu, op.cit. : 245.

The following definition is proposed for the truth conditions of 'p₁ deși p₂' .

(83) 'p₁ deși p₂' este adevărată dacă și numai dacă expresia 'p₁ și p₂ și nu este credibil₃ că (p₁ și p₂)' este adevărată.

[Vasiliu, op.cit. : 248]

We might assume that the IL translation of a sentence of type 'p₁ although p₂' is 'p₁ ∧ p₂ ∧ $\sim\Diamond_D$ (p₁ ∧ p₂)'.⁷

In conformity with our conventions, the extensional translation of sentence (82, a) is as follows :

(84) \sim pass - the - driving - test_≡^o (j) ∧ \sim look - unhappy_≡^o (j)

Then, according to the definition of although, the extensional translation of (82 b) is (85).

(85) \sim pass - the - driving - test_≡^o (j) ∧ \sim look - unhappy_≡^o (j)
 $\wedge \sim\Diamond_D (\sim$ pass - the - driving - test_≡^o (j) ∧ \sim look - unhappy_≡^o (j)).

Now, at least in certain contexts, it is reasonable to expect that someone who fails to pass his driving test will look unhappy, so that the truth of (86) can be taken for granted in those contexts; (86) translates as (87).

(86) It is believed that if someone fails to pass the driving test, he looks unhappy.

(87) $\wedge u \Box_D \wedge \sim$ pass-the-driving-test_≡^o (u) \rightarrow look-unhappy_≡^o (u)

It is easy to see that a concessive relation between

p₁ (= \sim look-unhappy_≡^o (j) and p₂ (= \sim pass-the-driving-test_≡^o (j))

of (82 a) can be inferred taking as premises the extensional translation of (82, a) and the contextual assumption expressed by (87).

The steps of a possible argument are given below, in (88). The last line of the argument (88,7) is the same as the proposition which expresses the truth conditions of the concessive sentence (82 b).

(88) 0. \sim pass-the-driving-test_≡^o (j) ∧ \sim look-unhappy_≡^o (j)
premise

1. $\wedge u \Box_D \wedge$ pass-the-driving-test_≡^o (u) \rightarrow look-unhappy_≡^o (u)
contextual premise

3. $\square_D \neg \text{pass-the-driving-test}^e_M(j) \rightarrow \text{look-unhappy}^e_M(j)$
 (From 1,2 by universal instantiation)

4. $\square_D \neg \text{pass-the-driving-test}^e_M(j) \vee \text{look-unhappy}^e_M(j)$
 Definition of material implication and the Law of
 double negation

5. $\square_D \neg \neg \text{pass-the-driving-test}^e_M(j) \wedge \neg \text{look-unhappy}^e_M(j)$
 De Morgan's Law

6. $\sim \Diamond_D \neg \neg \text{pass-the-driving-test}^e_M(j) \wedge \neg \text{look-unhappy}^e_M(j)$
 A Law of Doxastic Logic : $\square_D \sim p \leftrightarrow \sim \Diamond_D p$

7. $\sim \text{pass-the-driving-test}^e_M(j) \wedge \neg \text{look-unhappy}^e_M(j) \wedge$

$\sim \Diamond_D \neg \neg \text{pass-the-driving-test}^e_M(j) \wedge \neg \text{look-unhappy}^e_M(j)$
 (o.c. Ad)

Thus in certain contexts (82 a) is 'equivalent' with (82 b).

Remark. One may want to know more about the contextual premises implicit in deriving such particularized conversational implicatures. A lot of them belong in the class of common sense knowledge, a body of culture - bound beliefs, which reflect the practical concerns of society, the particular rules and purposes, of its institutions, the observation of nature of animal and human behaviour. Peters (1969) makes two significant remarks regarding what he calls the conceptual schemes of 'common sense' : a) common sense knowledge plays an essential part in both identifying, and understanding and explaining human behaviour ; b) the acquired common sense knowledge is the result of the speakers' having acquired a language and having been initiated from childhood onwards into the various rules and purposes that are constitutive of human life [op.cit. : 139]. From a different perspectives the relation between language and common sense was also emphasised by Chomsky (1976) or Putnam (1977).

- In addition to common-sense knowledge, in drawing contextual inferences, speakers can, naturally, rely on any proposition whose truth has already been established in the given discourse.

Occasionally the respective adverbial relation holding between MC and RC is made clearer by the presence of an implicative conjunct like even, however, yet, thus, therefore. One should stress that the presence of an implicative conjunct does not necessarily mean that the RC is an AvRC. As before, what counts is that the context allows the inference of a certain adverbial (asymmetric)

semantic relation between the two clauses ; thus of the two ApRC below, only the first is also a concessive RC.

(89) a. Even his followers, who used to be very enthusiastic about, Chomsky's programme, now disagree with him.

b. Even his followers, of whom the most interesting is Ray Jackendoff, now disagree with Chomsky.

9. The analysis of continuative and adverbial RCs is theoretically interesting : it shows how an expression having a given (constant) 'sense' can express different contents in different contexts. There is a dependence of content on context. Viewed as a coherent deductive system, the context appears to be a mini-language, sub-language' or 'an island of discourse'. Speaking of such 'islands of discourse', Wilks [1976 : 227] was noticing that each island has "its own criteria of inference, truth and so on, and it is with respect to these that utterances are to be understood". Wilks's remark echoes a well-known Wittgensteinian remark that to understand a sentence means to understand a language. [paragraph 199 of the Philosophical Investigation].

Notes

1) The negative determiners no/nici un/o can be included in this class if one remembers that semantically $\sim \forall x P(x) \leftrightarrow \exists x \sim P(x)$

2) Schewerwegs [1959 : 282] remarks that that may turn up in MRRCs more often than "strict grammarians may believe or want to admit it" e.g.

a) I hate my untrusting mind, that set Parkis on the watch. [Sch : 282]

b) The term is used to describe day continuation schools, that fill in the three or four years after the end of compulsory education.

[Sch : 282]

3) Kasher [1976 : 198] contends that there can be no fuller understanding of human argumentation without recognition of non-logical relations between possible points of departure of arguments and their points of termination.

We are referring here to relations of implicature ; there are not formal rules, but communicative and formal.

4) Kasher thinks that Grice's four maxims do not logically follow from the cooperation principle, but follow from more general and more basic principles regarding the rationality of human behaviour, such as his principle of effective means. "In any context, there is no

reason to assume that the speaker is not a rational agent ; his ends and his beliefs regarding his state in the context of utterance supply the justification of his behaviour... Given a desired end, one is to choose that action which most effectively, and at least cost, attains that end.

5) However Ducrot himself notices that there are sequences which have argument - structure and where, to infer the conclusion, one must count the presupposition among the arguments, and, therefore the link 'between clauses may regard not only assertions but also presuppositions'.

a) Il ne prend plus de caviar à son petit déjeuner.

b) Il est donc capable de se priver.

Ducrot insists that "il y a une dissymétrie indiscutable entre le rôle du posé et celui du présupposé, parce qu'il y a de nombreux cas où seul le posé intervient et qu'on n'en voit pas, en revanche, où seul interviendrait le présupposé. Ce fait laisse au moins présumer que, dans les exemples où les deux interviennent, ils n'interviennent pas au même titre".

6) We use the notion 'reasonable inference' in the sense defined by Stalnaker [1976 : 180-181] "Reasonable inference is a pragmatic relation ... Thus it contrasts with entailment which is a purely semantic relation ... An inference from a sequence of assertions or suppositions (the premisses) to an assertion or hypothetical assertion (the conclusion) is reasonable just in case, in every context in which the premisses could appropriately be asserted or supposed, it is impossible for anyone to accept the premisses without committing himself to the conclusion. A set of propositions (the premisses) entails a proposition (the conclusion) just in case it is impossible for the premisses to be true without the conclusion being true as well.

7) In the present framework, the modal part of the formula might have been analysed as a conventional implicature ; this would not have modified the conclusions of our analysis.

8) Proposition (2) can be asserted in any context, in virtue of the fact that proper names are rigid designators. Proposition (3), which shows that John is a genuine individual enables us to apply Universal Instantiation, as shown in Hintikka (1968).

Amount Relatives [= A R s]

O. Recently, Carlson [1977] has shown that there is in English a distinct class of relatives, which he calls "amount relatives" ; on the surface they are very much like RRCs, but they have, he claims, a syntax and semantics which align them more with comparative clauses than with RRCs.

We believe that Carlson's analysis is essentially correct. In this section, we briefly present Carlson's results, as well as an attempt at incorporating them in our fragment, which leads to certain modifications of his analysis ; we then examine Romanian ARs, and show that the data is differently structured chiefly because Romanian RCs possess a specific relative pronoun : cit, cîtă, cîti, cîte.

1. Carlson's analysis. The following types of clauses are labelled by Carlson "amount relatives". [Carlson op.cit. 525]

(1) a. Every man there was - on the raft died.

(Toți oamenii cîți/care se aflau pe plută au murit)

b. Any beer there may be - left in that cooler is all mine.

(Cîtă bere o mai fi rămas în frigider e toată a mea)

c. That's all there is left.

(Asta e tot ce a rămas)

d. You'll have to be content with that light there is.

(Va trebui să te mulțumești cu atîta lumină cîtă este)

e. The people there were - at that time only lived a few decades.

(Oamenii care se aflau pe timpul acela/de pe timpul acela trăiau numai cîteva decenii)

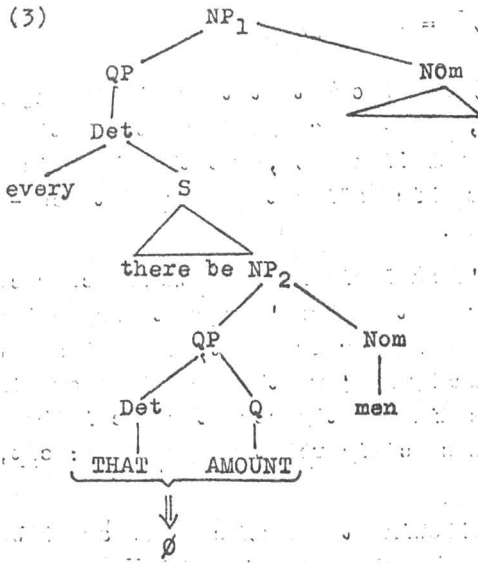
f. He put what he could in his pocket.

(Si-a pus în buzunar (atîta) cit a putut/tot ce a putut)

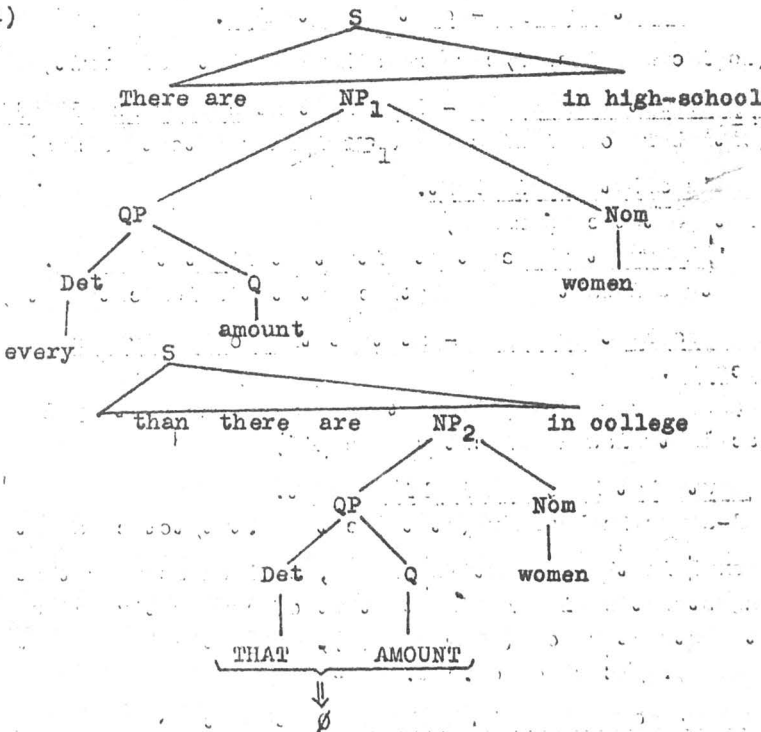
1.1. To explain the properties of ARs, Carlson assumes that their underlying structure is similar to that of comparative clauses. Compare the structure of (1 a) and (2), respectively presented in (3) and (4). [Carlson op.cit. 523-524]

(2) There are more women in high school than there are [V]
in college.

(3)



(4)



ARs present the following properties which justify the assumption that their DS is that shown in (3).

1.2. The most important property of ARs concerns the determiner of the relativized nominal : a) like the determiner of a compared nominal in a comparative clause, the determiner of the relativized nominal in an AR indicates a certain amount of something, e.g. in the case of countable nouns, the cardinality of the set designated by the nominal (see (3) and (4)); b) the second property of the AR determiner is its indefiniteness, which is proved by the fact that with ARs it is possible to relative the logical subject of a sentence that has undergone there insertion. In fact Carlson [1977 : 525] uses relativization of the logical subject of a there-insertion clause as the chief diagnostic context for ascertaining the range of matrix determiners that co-occur with ARs. On that basis, he isolates the following determiners that occur with ARs. (Notice, in contrast, (6)).

(5) every, any, all, what, that, the (see examples (1)).

(6) a. { Five, Most, Several, Many, Some } men there were here disagreed.

b. { Some, Each, A } man there was here disagreed.

The compared NP in a compared clause may also undergo there-insertion, as is shown in (2) or (4).

1.3. Carlson's analysis correctly predicts that since the quantifier of the relativized NP is an expression of amount [roughly equivalent with, that much, or that many], countable singular nouns will not appear as heads of ARs, in (7), the third version, where a countable singular noun occurs, "is distinctly strange".

[In this paragraph, I will quote Carlson's examples.]

(7) a. { Those, the, what } men there were in Austria like Bob.

b. { That, the, what } meat there was soon eaten by the cougar.

c. { ^xThat, the, what } man there was in Austria likes Bob.

For the same reason, countable singular nouns cannot be compared.

(8) He said more { words, ^xword } than I thought.

1.4. The amount expression in the AR has consequences on the semantic interpretation of ARs as against RRCs; ARs express properties of sets, not of individuals. Carlson compares (9), which can be taken as a RRC, with (10), which can be taken only as an AR.

(9) Huey put everything which was red in his crib.

(10) Marv put what he could in his pocket.

(9) is a(n) ordinary) RRC and has the following Predicate Calculus translation :

(11) $\bigwedge x \big[\text{red}(x) \rightarrow \text{put}(\text{Huey}, x, \text{in Huey's crib}) \big]$

According to (11), assuming that the variable ranges over, say, the things in Huey's bedroom, then, if there is at least one red thing which Huey failed to put in his crib, the sentence would be counted false.

If the semantics of (10) were like those of (9), (10) might be represented by (12).

(12) $\bigwedge x \big[\text{Marv could put } x \text{ in his pocket} \rightarrow \text{Marv put } x \text{ in his pocket} \big]$

Again, if, within the envisaged range there is an object which would possibly have been put in Marv's pocket but was not, then (12) would be counted false. However, such a situation would not falsify (10) which simply claims that Marv has jammed his pockets full. Such an interpretation is expected under the analysis presented in (3), according to which the RC in (10) would be something of the following nature :

(13) Marv could possibly put THAT MANY THINGS in his pocket.

If, on the other hand, (10) exemplified a RRC, then the rough form of the RC would be (14) not (13).

(14) Marv could put THAT THING in his pocket.

Thus a constituent of the meaning of (10) is a statement about Marv's being able to put a certain number of things in his pocket, and not a statement about each particular object in the area that is able to be put in his pocket. Another unambiguous AR is (15).

(15) Marv put almost everything he could in his pocket.

In most contexts, however the AR and RRC structures give rise to equivalent interpretations, resulting in unambiguous sentences. Thus Carlson claims that (16) "has two distinct syntactic interpretations $\big[\text{AR and RRC} \big]$, but an ambiguity is most difficult to discern".

(16) Marv threw out everything that was old.

The differing interpretations arise only in contexts like (10) or (15), where quantity, in some way, plays the key role.

1.5. Unlike RRCs, (headed) ARs are never introduced by wh-forms (who, which), but only by that, Ø. Compare (1) with (17).

(16) a. ^x Every man who there was on the raft died.

b. ^x { Those, The, Any } bugs which there were on the windshield were harmless.

1.6. An important property of ARs is that they can relativize NPs which cannot be relativized by RRCs, specifically NPs containing a cardinal (indefinite)¹ determiner. (Remember that in RRCs the relative NP is always definite, undergoing obligatory CDT).

A typical cardinality context is that of 'measure phrases'.² If they are NPs [not adverbial phrases], measure phrases require the presence of a cardinal determiner; [other determiners cause ungrammaticality. Measure phrases can be relativized by ARs (the (b) versions below) but not by RRCs [the wh-forms produce deviant sentences]. Here are a few examples:

(17) a. The road went on for twenty / many / ^xthe, ^xmost miles past Dry Gulch.

b. ^x { Several, These, Twenty } miles that the road went on for-past Dry Gulch were tough ones indeed.

c. { The, Those, What, Every } (few) mile(s) { that, ^xwhich } the road went on for-past Dry Gulch were tough ones, indeed.

(18) a. Max weighs ninety, ^xthe, ^xmost pounds.

b. { ^xSeveral, ^xMany, ^xMost } pounds that Max weighs make little difference.

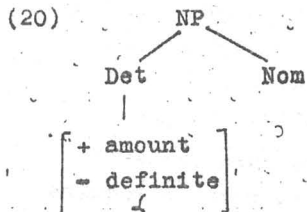
c. { The, Those, That, Every } (few) pound(s) { that, ^xwhich } Max weighs make little difference.

Naturally, NPs in the contexts of (17) - (18) may be compared.

(19) Max weighs more pounds than Fred weighs.

2. Incorporating ARs in Our Fragment. Laying stress on the similarities between comparative clauses and ARs, Carlson assigns the latter a structure very similar to that of the former. (see PM(3) and (4) again). From our point of view, there are two important facts regarding the underlying structure suggested in (3).

2.1. The relativized NP contains a quantifier phrase of the type THAT AMOUNT. In the case of countable nouns, we interpret this determiner to mean something like THAT MANY or α MANY where α is a degree or cardinality variable. Moreover, this determiner is indefinite, a conclusion which is warranted by the distribution of amount expressions :



There were several/three horses on the pasture.

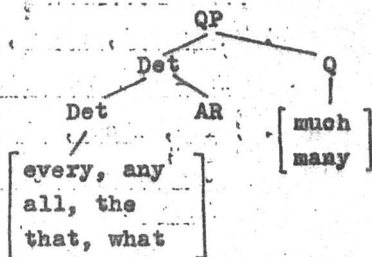
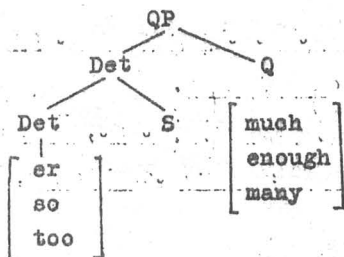
The tentative form of the relativized NP in ARs is given in (20).

In fact the structure of the relativized NP is the essential aspect of the syntax and semantics of ARs.

2.2. An important problem to discuss is the generation of the AR in the determiner, again on the pattern of the comparative clause.

(21) a. Structure of the QP in Comparative (like) structures.

b. Structure of the QP in the AR.



From the point of view of the fragment constructed here, the acceptance of Carlson's proposals leads to certain difficulties :

a) difficulties in the categorial definition of ARs which cannot be analysed as CN/CN constituents or NP/NP determiners ;

b) difficulties in the analysis of every, any, all, the, that, what, which will appear in two distinct DS positions : before nominals and before ARs or cardinal quantifiers. One would have to distinguish two classes of formatives, every₁, every₂ etc. associated with different translations. Of course there is no reason why we could not devise new categories of relatives and determiners, but it remains to be seen whether the inelegancies which would result from adopting this analysis are compensated by other gains in the explanatory power of the analysis.

Let us examine Carlson's reasons for positing a determiner source

for the AR.

2.3. Complementizer selection. One of the primary reasons for choosing a determiner source for certain types of clauses, such as comparatives, is that one can conveniently state co-occurrence restrictions between the determiner and the complementizer of the embedded clause.

(22) Max is tall ER THAN Marie is.

Max is SO tall THAT he has to crawl through doors.

Carlson claims that "likewise, those items which allow associated ARs would be subcategorized for a clausal sister exhibiting a that complementizer, which is obligatorily deleted if the Det is what". [Carlson 1977, 539.]. As is probably obvious, the analysis we have developed so far forces on us a different conclusion from Carlson's. ARs are introduced not only by that but also by certain wh-forms; in our analysis what is generated in the RC not in the matrix as Carlson seems to imply. In fact one has to exclude who, which from ARs while allowing that, what. We suggest that the correct generalization is that ARs allow only (a subset of the) indefinite determiners in the RC. Hence who, which which are always made definite by the CDT are banned from ARs. RCs introduced by that are compatible with indefinite determiners because the CDT does not apply with that RCs. On the other hand, wh-pronouns in FRCs are always indefinite, and hence potentially usable in RCs. In fact not only what, but also whatever appears in clauses which are naturally interpretable as ARs (i.e. clauses where what, whatever have quantitative meanings as in the following examples).

(23) a. Whatever money the schoolmaster possessed, he must have had

about his person at the time of his disappearance. [PT, II-1221]

b. Whatever of warmth and love the deceased man might have had,

he had shut up within himself. [PT II - 1224]

It seems that no new mechanisms over those already available in our fragment are necessary to predict the correct range of AR relative markers if one accepts our analysis of FRCs.

Moreover if what, whatever ARs are derived as clauses with definite antecedents, the following generalization can be stated : antecedent determiners of ARs are either definite (+coll) or

universal (-coll).

This is not accidental. We have said that ARs predicate something about the members of a certain set, in fact ARs may be used to answer "amount" questions.

(24) a. How many men died ?

Every man there was on the raft died.

b. How many dollars did he pay John ?

Well, he paid him what / whatever dollars he still owed John.

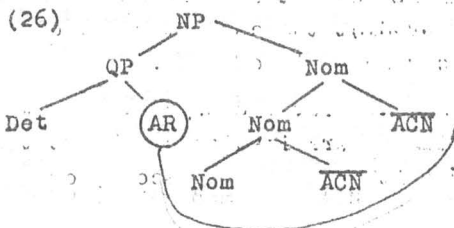
Amount "how" questions ask about the cardinality of a set ; ARs relativize an NP position with a specific cardinal. The nominal in the RC is quantified by a degree variable and this is why the antecedent nominal takes only determiners which add nothing with respect to the cardinality of the set talked about in the AR : universal quantifiers - reinforce the idea that a certain property holds about (all) the member of a set, however many they may be ; the (collective) definite determiners add the idea that a certain set of cardinality α is unique. The set of cardinality α is given in the AR and cannot be divided by indicating parts of it, or further restricted by adding another RC ; this is why ARs do not stack.

2.4. Stacking. Carlson's second reason for assuming that ARs have determiner source is that they do not stack, while RRCs can stack. As suggested above, we believe that this is a semantic constraint. Naturally, combinations of RRC and AR are allowed.

(25) a. Every dog there is in there that is still hungry will be fed immediately. [Carlson, 1977]

b. Mary put all the clothes that she could that were still slightly soiled into the washer.

Notice however that the Det source predicts that the AR should be NP-final (see 26), although, because of the fact that the AR is often introduced by a ϕ marker, the AR always occurs next to its head.

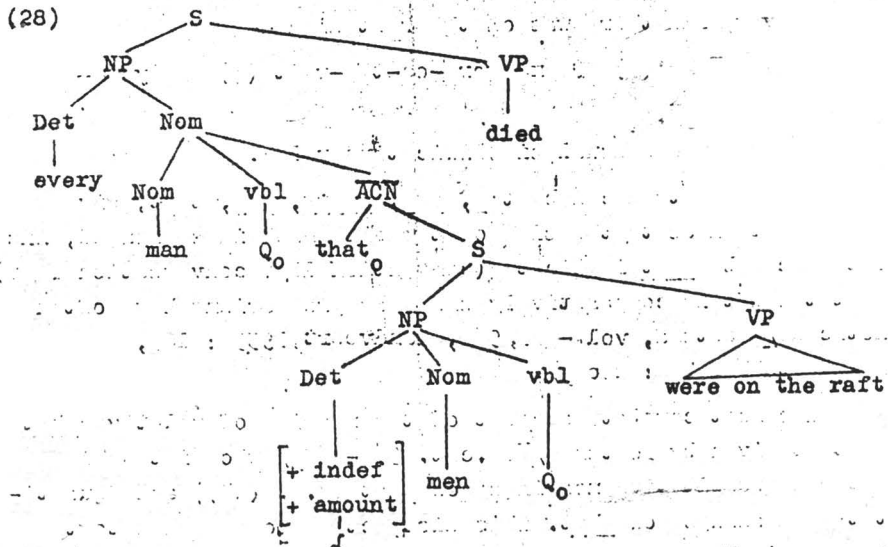


To conclude, a determiner source predicts that AR do not stack and occur in final NP position; only one of these predictions is borne out.

On balance we prefer to bar AR stacking by an ad-hoc semantic condition and to treat ARs as a variety of CN/CN constituents, characterized by the fact that the relativized NP contains an indefinite amount determiner. Syntactically, ARs are particular instances of that - relatives or FRCs. The semantics of ARs and of comparative clauses derive from the fact that both operate with degree/amount variables.

In the case of countable nouns the coreference condition of ARs will appear as identity of the same set variable that binds the antecedent nominal and relativized NP. Relativization takes place at group level. No other specifications are necessary to generate and translate AR into IL. Below we offer an illustration (abridged).

3. (27) Every man there was on the raft died.



Condition = $Q_0 = Q_0$

- (28) 1. $\mathcal{L} \text{ (many) men} \rightarrow \mathcal{P} \forall x \left[\text{man}'(x) \wedge Q_0 \{x\} \wedge \mathcal{P} \{x\} \right]$
 2. $\mathcal{L} \text{ (many) men were on the raft} \rightarrow \forall x \left[\text{man}'(x) \wedge Q_0 \{x\} \wedge \text{were-on-the-raft}'(x) \right]$
 T 10 and usual simplification rules
 3. $\text{that there were on the raft} \rightarrow Q_0 \forall x \left[\text{man}'(x) \wedge Q_0 \{x\} \wedge \text{were-on-the-raft}'(x) \right]$

Relative Binding = T 11 b

4. men- there - were - on - the - raft $\rightarrow \hat{P}_0 \hat{\forall}x \neg \text{man}'(x) \wedge$
 $P_0 \{x\} \wedge \text{were - on - the - raft}'(x) \neg$ T8b

5. every $\rightarrow \hat{R} \hat{S} \forall P \wedge y \neg [\neg \hat{R}\{P\} \wedge P\{y\}] \rightarrow S\{y\}$

6. every man there was on the raft \rightarrow
 $\Rightarrow \hat{R} \hat{S} \forall P \wedge y \neg [\neg \hat{R}\{P\} \wedge P\{y\}] \rightarrow S\{y\} (\hat{P}_0 \hat{\forall}x \neg \text{man}'(x) \wedge$
 $P_0 \{x\} \wedge \text{were - on - the - raft}'(x) \neg) \rightarrow$ T 5 b

7. $\rightarrow \hat{S} \forall P \wedge y \neg [\neg \hat{P}_0 \hat{\forall}x \neg \text{man}'(x) \wedge P_0 \{x\} \wedge \text{were - on - the -$
 $\text{- raft}'(x) \neg] \{P\} \wedge P\{y\} \neg \rightarrow S\{y\}$ Abstraction Application

8. $\rightarrow \hat{S} \forall P \wedge y \neg [\hat{\forall}x \neg \text{man}'(x) \wedge P\{x\} \wedge \text{were-on-the-raft}'(x) \neg]$
 $\wedge P\{y\} \neg \rightarrow S\{y\}$

Brace Convention, Down Up Cancellation

9. every man there was on the raft died \rightarrow
 $\forall P \wedge y \neg [\hat{\forall}x \neg \text{man}'(x) \wedge P\{x\} \wedge \text{were-on-the-raft}'(x) \wedge P\{y\}] \rightarrow$
 $\rightarrow \text{died}'(y) \neg$

T 1 f and usual simplification rules.

4. While ARs introduced by the, any, every, all, that, give no indication as to the size of the set which is envisaged, ARs introduced by what implicate (conventionally? conversationally?) that the set is comparatively small as grammarians have often noticed [Poutsma, vol.- II, 962, Zandvoort, 1959 : 189, Huddleston 1971 : 240]

The most complete account of the meaning of relative what is that given by Poutsma [op.cit. 962-963] who distinguishes between "qualitative meanings" of what (e.g. (23)) and "quantitative meanings" of what. This distinction corresponds to the use of what in FRCs and ARs respectively. According to Poutsma "The quantitative what is mostly depreciative, depreciation being often explicitly stated by the addition of little or few" [op.cit. 962].

(26) Qualitative 'what'

a) What virtue he knew, he tried to practice. [PT, II, 962]

b) We are entirely with Mr. Shaw in asking that managers should have liberty to produce what plays they please.

[PT, II, 962]

(27) Quantitative what

- a. I gave him what help I could. [Pt. II.963]
- b. But Dora stored what little she could save and sent it
them by stealth. [Pt : 963]
- c. There is not much expression in his eyes but from what
there is you would fancy that he was oppressed by a
secret sorrow. [Pt : 963]
- d. The horses, he said, were very well, what there were of
them. [Pt : 963]

Furthermore Huddleston [1971 : 240] notices that whereas we can say what little money/what few friends she has, the corresponding forms with "multal" rather than "paucal" quantifiers are anomalous^x what much money/what many friends she has, and that determiner what is not used with countable singular nouns ; he then suggests that we could account for the meaning of quantitative what and for the above noticed distributional restrictions, by postulating an obligatory paucal quantifier in the DS of such expressions ; it would be realized as few/little etc., or else be purely abstract and have no overt realization. We have adopted Huddleston's suggestion regarding the analysis of the quantitative determiner what. (28) below is an (abridged) illustration.

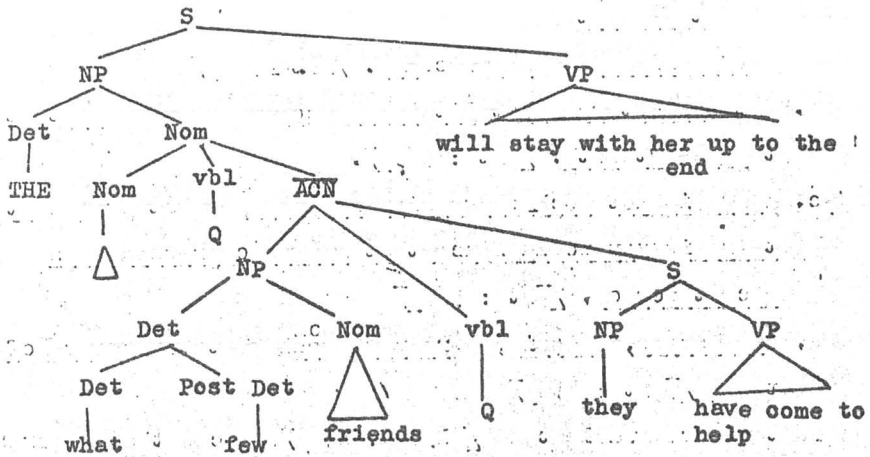
(28) What few friends have come now to help will stay with her
up to the end.

(29) 1. they $\Rightarrow \widehat{R} \mathcal{R}\{Q\}$

2. they have come to help $\Rightarrow \widehat{R} \mathcal{R}\{Q\} (\text{'come}) \rightarrow \text{'come'}(Q)$

T 1 f, simplification rules.

3. what few $\Rightarrow \widehat{Q} \widehat{R} \widehat{P}_0 \text{ Fnx } [Q\{x\} \wedge P_0\{x\} \wedge \mathcal{R}\{P_0\}]$



$$4. \text{ what few friends } \rightarrow \widehat{R} \widehat{P}_0 \text{ Fnx } \llbracket \text{friend}'(x) \wedge P_0 \{x\} \wedge \widehat{P}_0 \rrbracket$$

$$5. \text{ what few friends have come } \Rightarrow \widehat{P}_0 \text{ Fnx } \llbracket \text{friend}'(x) \wedge P_0 \{x\} \wedge \text{come}'(P_0) \rrbracket$$

T 11c

$$6. \Delta \text{ what few friends have come } \Rightarrow \widehat{P}_0 \text{ Fnx } \llbracket \text{friend}'(x) \wedge P_0 \{x\} \wedge \text{come}'(P_0) \rrbracket$$

T 8b, and simplification rules

$$7. \text{ the } \Rightarrow \widehat{P} \widehat{VP} \wedge Q \llbracket \widehat{P} \{Q\} \rrbracket \rightarrow P = Q \wedge \widehat{P} \{P\}$$

$$8. \text{ the } \Delta \text{ what few friends have come } \Rightarrow \widehat{P} \widehat{VP} \wedge Q \llbracket \widehat{P} \{Q\} \rrbracket \rightarrow P = Q \wedge \widehat{P} \{P\} \llbracket \widehat{P}_0 \text{ Fnx } \llbracket \text{friend}'(x) \wedge P_0 \{x\} \wedge \text{come}'(P_0) \rrbracket \rrbracket \rightarrow$$

T 5b

$$9. \rightarrow \widehat{P} \widehat{VP} \wedge Q \llbracket \text{F n x } \llbracket \text{friend}'(x) \wedge Q \{x\} \wedge \text{come}'(Q) \rrbracket \rrbracket \rightarrow Q=P \llbracket \wedge \widehat{P} \{P\} \rrbracket$$

Abstraction Application, Brace Conv., Down-Up Cancel. Abstraction Application

$$10. \text{ the } \Delta \text{ what few friends have come will stay with her up to the end } \Rightarrow$$

$$\Rightarrow \widehat{R} \widehat{VP} \wedge Q \llbracket \text{F n x } \llbracket \text{friend}'(x) \wedge Q \{x\} \wedge \text{come}'(Q) \rrbracket \rrbracket \rightarrow Q = P \llbracket \widehat{P} \{P\} \wedge \text{stay - with - her}'(P) \rrbracket$$

T 1g

$$11. \rightarrow \widehat{VP} \wedge Q \llbracket \text{F n x } \llbracket \text{friend}'(x) \wedge Q \{x\} \wedge \text{come}'(Q) \rrbracket \rrbracket \rightarrow Q=P \llbracket \wedge \text{will - stay - with her}'(P) \rrbracket$$

Abstraction Application, Brace Convention, Down-Up Cancellation

$$12. \widehat{VP} \wedge Q \llbracket \text{F n x } \llbracket \text{friend}'(x) \wedge Q \{x\} \wedge \text{come}'(Q) \rrbracket \rrbracket \rightarrow \text{come}'(z) \rrbracket \rightarrow Q=P \llbracket \wedge y \llbracket \text{will - stay - with - her}'(y) \rrbracket \rrbracket$$

M P 11.
(twice)

5.0. Romanian ARs. The analysis above has described ARs as being a semantic subtype of RCs, characterized by their containing a degree variable in the relativized NP. ARs are identifiable in Romanian as well, moreover, unlike English, Romanian possesses a specific relative pronoun of amount - cît/cîtă, cîți/cîte - which stands for the degree variable.

(29) a. Cît de multe / Cîți au venit ?

Totî cîți / Atîția cîți au fost chemați.

b. How many have come.

All that were invited.

As many as were invited.

The examples show an important difference between the two languages : Romanian cît is used both as an interrogative and as a relative pronoun of amount', English how cannot be used as a relative adverb.

A second important remark is that although ARs are often (but not always) introduced by cît / cîtă, not all the structures of type Det + Nom + cît / cîtă are ARs, specifically, some of them are comparative clauses. We first try to separate comparative clauses from ARs proper.

5.1.1. ARs like all the other categories of RCs observe the coreference condition, comparative clauses need not and as a rule do not observe any coreference condition. Different (sets of) objects are described in the matrix and the subordinate clause respectively. Consider the following examples :

(30) a. Am cumpărat atîtea rochii cîte ai cumpărat și tu, dar ale mele sînt mai ieftine.

a'. I have bought as many dresses as you have, but mine are cheaper.

b. Am citit atîtea cărți cîte ai citit și tu, dar tu ai ales lucrări mai interesante.

b'. I've read as many books as you have, but you have chosen more interesting works.

c. Am invitat (tot) 7 musafiri, cîți au fost și la Rodica, dar nu pe același.

c'. I also have invited 7 guests, as many as have come to Rodica's party, but not the same people.

(31) a. Am citit toate cărțile care / pe care le-am citit și tu, ^xdar nu pe aceleași / ^xdar tu ai ales lucrări mai interesante.

a'. I have read all the books you have read/^xbut you have chosen more interesting works.

b. I-am invitat pe cei 7 musafiri citi / care au fost și la Rodica, ^xdar nu pe aceiași.

b'. I have invited the 7 guests who came to Rodica's party, ^xbut not the same people.

The examples in (30) and (31) bring out the differences between comparative and relative clauses with respect to the coreference condition.

5.1.2. The formative atît / atîti is used in comparative clauses, in correlation with cît / cîți, as well as in RCs introduced by care / ce; in both cases it is semantically a degree-variable, meaning 'that many / much', and it is syntactically realised as an adverb / pronoun / determiner.

(32) Ion e tot atît de înalt ca Petre.

(33) a. Am umplut atîtea lăzi cîte ai umplut și tu.

b. ^xAm umplut atîtea lăzi pe care le-am umplut și tu.

a. Am atîția bani cîți ai și tu.

b. ^xAm atîția bani pe care îi ai și tu.

(34) a. Din tot efectivul au venit numai atîția.

b. În raportul final se va justifica : Din efectivul total de 85 de studenți au fost atîția care au participat la munca patriotică, dintre care, atîția care și-au realizat norma și atîția care nu au realizat-o.

It is worth noticing that in RCs introduced by care / ce, atît / atîti is more frequently used as an evaluative quantifier with a more specific quantitative meaning : 'so many', 'a great many'.

(35) a. Sînt atîția care iau examenul fără să aibă habar.

b. *Sînt atîția cîți iau examenul fără să aibă habar.
((35 b) is semantically ill formed).

c. Cunosc atîția oameni care / *cîți îl admiră.

5.1.3. The atît Nom cît structure naturally finds its place within the paradigm of the comparative of nouns (uncountable and countable plural nouns).

(35') a. A dovedit mai multă bunătate decît ai dovedit tu.

b. Cunosc mai multe orașe decît cunoaște Andrei.

c. Am mai puțini studenți decît ai tu.

d. Am (tot) atîția studenți cîți ai și tu / cît tine.

Let us also mention that the following sentences also seem acceptable :

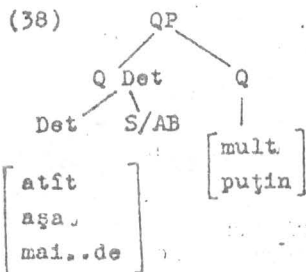
(36) a. ?? *Am mai mulți bani de cîți ai tu.

b. ? Am tot atîția studenți cît ai și tu.

The fact that cît is morphologically an adverb in decît and a pronoun or adverb in atît, cît should not obscure the relations between the clauses in (35) and (36). Atît - cît is a comparative structure and should be analysed as such.

5.1.4. It is to be noted that the atît Nom cît structure gives rise to ambiguities of scope, typical of the comparative, extensively discussed in the literature [Huddleston [1973], Postal [1974 b], Reinhart [1975], Abbot [1976]]. Consider (37) :

(37) Ion nu crede că are atîția prieteni cîți are.



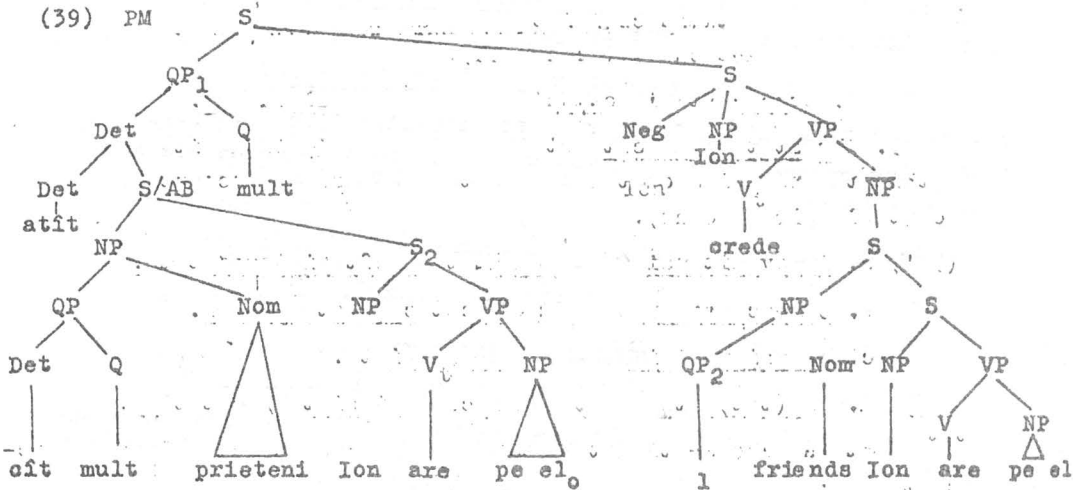
Note. For the sake of this discussion, taking into account VG [1969], Bresnan [1973], Milner [1974] we tentatively assume that Romanian comparative (-like) structures contain a QP of the following sort :

(37) is ambiguous between the so-called 'contradictory' and 'matter of fact'

readings. We can represent the two readings of (37) as follows : on the non-con-

tradictory reading, Ion believes that he has (only) β many friends, while in fact he has α many friends. The comparative clause is not in the scope of the modal operator believe :

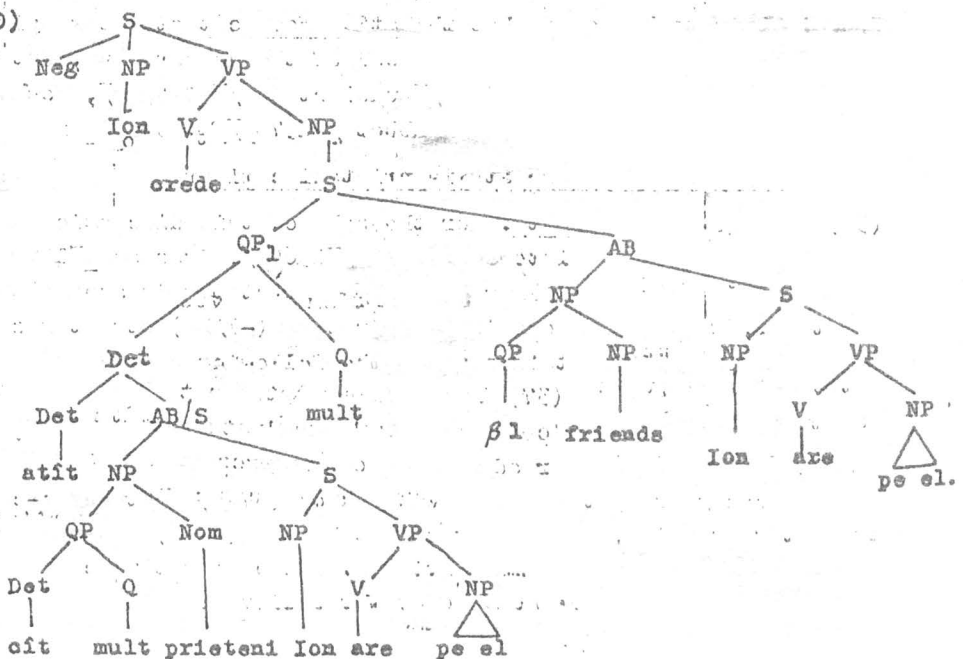
(39) PM



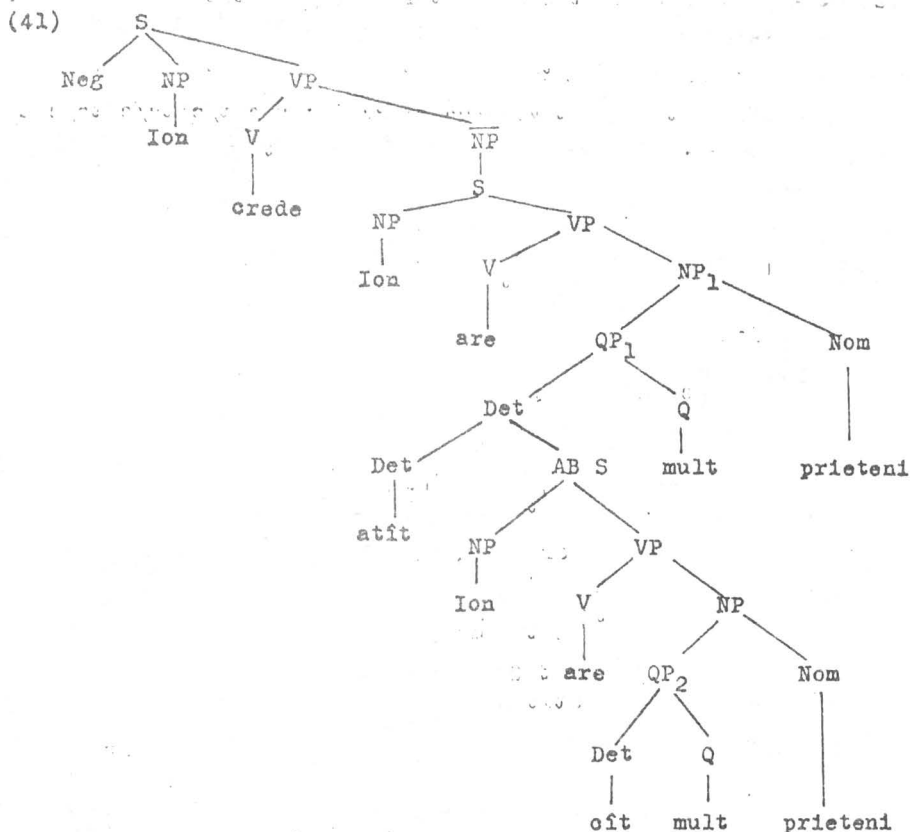
On the second, contradictory reading, Ion has the absurd belief that the number of his friends is not equal to itself (40).

5.1.4.1. Note on the Syntax of the comparative clause : 5.1.4.1.1. In the comparative structure, the comparative clause is a member of the determiner of the quantifying phrase, so that the problem of complementizer selection mentioned above is adequately solved.

(40)



5.1.4.2.1. The derivation of such clauses involves the following stages : lowering of the quantifier phrase(s), [which applying on (39) produces (41)] and clause shift, which positions the comparative clause after the head nominal.



There follow agreement rules which copy the gender, number (case) feature of the head nominal on the quantifier phrases [QP₁ , QP₂]. Agreement can operate in two ways : 1) optional insertion of de, sister adjoined to the Q in the QP. If de has been inserted. Agreement copies the nominal features on the quantifier of the QP (on mult) producing sentences such as :

(42) Ion nu crede că are atît de mulți prieteni cît de mulți prieteni / cît de mulți dușmani are.

[Alternatively de might have been inserted in the DS : QP → Det Q Q → de Q]. In the comparative clause, the QP₂ with its head is fronted ; this causes Inversion of the subject after the verb.

(43) Ion nu crede că are atât de mulți prieteni cîți are Petre /

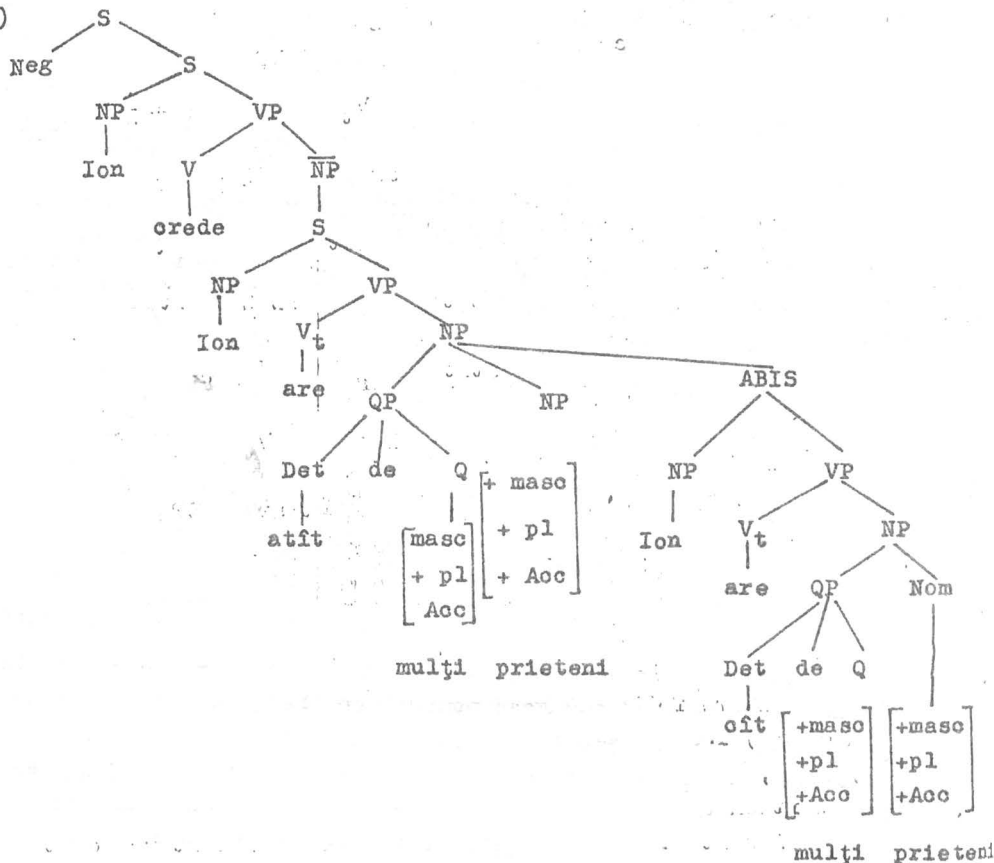
^xcîți Petre are.

2) If there is no de insertion, then the Q [= mult] is deleted, and the remaining quantifying determiner [= atît] undergoes Agreement.

Ion nu crede că are atîția prieteni cîți prieteni are.

This is how the relative pronominal forms cît/cîta/cîtă/cîte are obtained.

(44)



The identical nominal can be deleted by Comparative Deletion :

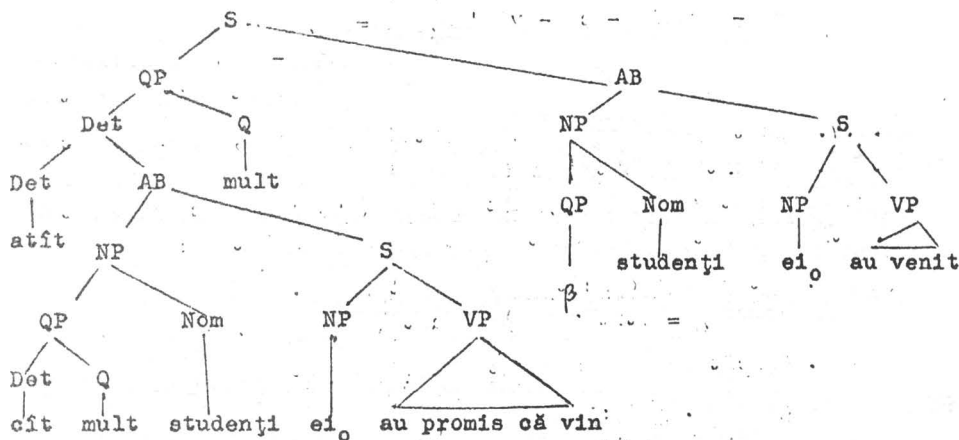
(45) Ion nu crede că are atîția prieteni cîți are.

5.1.6. Note. We also present the IL translation of atît-cît comparative structures. Notice, in step [4] of the translation, that cît is logically a binder like the rest of the relatives :

$$c\hat{a}t\hat{i} / c\hat{o}t\hat{e} \Rightarrow \widehat{P} \widehat{Q} \widehat{\lambda} \widehat{V}_x [P \{x\} \wedge Q \{x\}]$$

The tentative semantic analysis presented here is based on Cresswell [1976]. (α, β, γ below are variables of extent, degree etc.)

(46) Au venit atîția studenții cîți au promis că vin.



(47) 1. $ei_0 \Rightarrow \widehat{P P} \{x_0\}$

2. $au - promis - că - vin \Rightarrow au - pr\ddot{o}mis - că - vin'$

3. $ei_0 \widehat{au - promis - că - vin} \Rightarrow au - promis - că - vin' (x_0)$

T 1 f, simplification rules

4. $c\acute{i}\acute{t}\acute{i} \widehat{studen\ddot{t}\acute{i}} \Rightarrow \widehat{Q} \widehat{\alpha} \widehat{\forall x} [student'(x) \wedge Q \{x\}]$

5. $c\acute{i}\acute{t}\acute{i} \widehat{studen\ddot{t}\acute{i}} \widehat{au - promis - că - vin} \Rightarrow$

$\widehat{\alpha} \widehat{\forall x} [student'(x) \wedge au - promis - că - vin'(x)]$

T 11 c, simplification rules

6. $at\acute{i}\acute{t}\acute{i}a \Rightarrow \forall \alpha \widehat{P P} \{\alpha\}$

7. $at\acute{i}\acute{t}\acute{i}a \widehat{c\acute{i}\acute{t}\acute{i} \widehat{studen\ddot{t}\acute{i}} \widehat{au - promis - că - vin}} \Rightarrow$

$\forall \gamma [\widehat{P P} \{\gamma\} \wedge \widehat{\alpha} \widehat{\forall x} [student'(x) \wedge au - promis - că - vin'(x)]] \wedge$

$\alpha = \gamma \widehat{J}$

T comparative

8. $ei_0 \widehat{au venit} \Rightarrow venit(x)_{\beta}$

9. $\beta \widehat{studen\ddot{t}\acute{i} \widehat{au venit}} \Rightarrow \beta \widehat{\forall x} [student'(x) \wedge venit'(x)]$

T 11 c

10. $at\acute{i}\acute{t}\acute{i}a \widehat{c\acute{i}\acute{t}\acute{i} \widehat{studen\ddot{t}\acute{i}} \widehat{au - promis - că - vin} \widehat{au venit}} \Rightarrow$

$\forall \gamma [\widehat{P P} \{\gamma\} \wedge \widehat{\alpha} \widehat{\forall x} [student'(x) \wedge au - promis - că - vin'(x)]] \wedge \alpha = \gamma \widehat{J}$

$(\beta \widehat{\forall x} [student'(x) \wedge venit'(x)]) \Rightarrow$

11. $\forall \gamma [\beta \widehat{\forall x} [student'(x) \wedge venit'(x)]] \wedge \widehat{\alpha} \widehat{\forall x} [student'(x) \wedge au - promis - că - vin'(x)] \wedge \alpha = \gamma \widehat{J}$

Abstraction Application

12. $V \gamma \overline{\wedge}^{\beta} \forall x \overline{\wedge} \text{student}'(x) \wedge \text{venit}'(x) \overline{\wedge} (\gamma) \wedge \overline{\wedge}^{\alpha} \forall x \overline{\wedge} \text{student}'(x)$
 $\wedge \text{au - promis - c\aa - vin}'(x) \overline{\wedge} \wedge \alpha = \gamma \overline{\wedge}$
 Brace Convention

13. $V \gamma \overline{\wedge}^{\gamma} \forall x \overline{\wedge} \text{student}'(x) \wedge \text{venit}'(x) \overline{\wedge} \wedge \overline{\wedge}^{\alpha} \forall x \overline{\wedge} \text{student}'(x)$
 $\wedge \text{au - promis - c\aa - vin}'(x) \overline{\wedge} \wedge \alpha = \gamma \overline{\wedge}$
 Down-Up Cancellation,
 Abstraction Application

5.1.7. To the same comparative pattern, belong, we think, constructions with oric\it used as a surface adverb (48) or as a surface relative pronoun / determiner (49) ; in such cases the quantifying determiner of the matrix QP is deleted :

- (48) a. Pot s\aa fug oric\it de repede trebuie.
 $\overline{\wedge} = \text{at\it de repede c\it (de repede) trebuie} \overline{\wedge}$
 b. Oric\it de des a\aa repeta fraza aceasta ea mi se pare absurd\aa. $\overline{\wedge}^N : 198 \overline{\wedge}$
 $\overline{\wedge} = \text{oric\it de des c\it a\aa repeta fraza aceasta} \overline{\wedge}$
- (49) a. Imprumut\aa-mi oric\iti (bani) po\iti p\ina s\apt\amina viitoare.
 b. Oric\ite bun\at\ati s\aa am, singur la mas\aa nu-mi tihn\este.
 $\overline{\wedge}^N : 198 \overline{\wedge}$
 c. Pe ritmul acesta poate face apoi cineva oric\it\aa poezie popular\aa va vrea. $\overline{\wedge}^I : 17 \overline{\wedge}$

5.1.8. It is worth mentioning that in the Romanian comparative structure, the position of at\it $\overline{\wedge} =$ the determiner of the matrix quantifying phrase $\overline{\wedge}$ may be occupied by other expressions of amount : cardinals, other indefinite quantifiers like c\it\iva, pu\itini, open class quantifiers like o mult\ime, o gr\amad\aa, o droaie, o brum\aa etc.

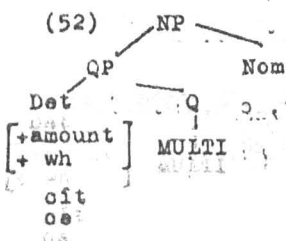
- (50) a. C\iteva kilograme c\it c\int\t\are\ste copilul nu mai conteaz\aa.
 a'. Those (few) pounds (that) / ^{which} the baby weighs will make little difference.
 a''. ^{Few} Pounds (that) the baby weighs will make little difference.
 b. 10 lei o\st te-a co\stat cartea n-au s\aa te ruineza.
 b'. The ten lei (that) / ^{which} the book cost you won't ruin you.

- b". Țen lei that the book cost you, won't ruin you.
- c. Căci multe au văzut ochii mei de atîta amar de veacuri
oite port pe umerele acestea. [C : 40]
- c'. for many things have I seen in the ages and ages my
shoulders are bending under. [C.T.:241]
- d. dar ia spuneți-mi, rușinea unde o puneți-? Din trei feciori
oîți are tata, nici unul să nu fie bun de nimica ? [C : 39]
- d'. but tell me what about the dishonour ? Of the three sons
I have, not one is any use ? [CT: 240]
- e. Dintr-o mulțime de studenți oîți au promis că vin,
au venit numai zece.
- e'. Of the many students, who promised to come, only ten did come.

The counterparts of the Romanian sentences are English ARs or RRCs. Notice the obligatory occurrence of ardefinite article in the front of the quantifier, in contexts of cardinality, where an AR is the only choice. [a', b']

5.2. We can now briefly examine ARs proper. Like their English counterparts, to which they are quite similar, they represent a subclass of RRCs and FRCs ; namely they are RRCs or FRCs where the relative terms contains a variable of amount. [PM (28)]. As surface realizations of this variable Romanian uses oî, a specific form, alongside with ce (used in FRCs, with quantitative meaning).

- (51) a. Toate obiceiurile oite le avem noi le au întocmai și frații
noștri munteni. [N : 30]
- b. Puteai să-i oîmi pe toți oîți sînt pe lume. [N : 30]
- c. Pe mine oîți oîini m-au lătrat, toți au turbat. [N : 158]
- d. Să vă spun exact ce bani mai am.
- e. Le-am plămădit cu ce brumă de știință am putut și eu să
adun din studii și din călătorii.



Unlike English there is no indefiniteness constraint on the relativized NP. At least in RRCs oî is a definite pronoun, as it should, often reduplicated by unstressed forms of the personal pronoun.

(53) a. De ce nu poate omul toate câte le dorește. [Od. : 28]

b. Nu mai sta din poenit cu biciul și de șerguit ou toți.
drumeții pe oști și înfilnea. [C :]

5.2.2. For the same reasons as in English, the range of the admissible matrix determiners includes a subset of the definite determiners [e.g. - 1 - cel, acest, acel, celălalt] as well as the universal [- individual] predeterminers toți. [The universal determiners fiecare, oricare are [+ individual], hence excluded].

(54) a. Si numără în gînd pe toți oști și vede. [N : 152]

b. Si-a îngrămădit în geamantan tot ce a apucat.

c. Ar fi trebuit un editor de talia lui Brătescu-Voinești,
ca să fi putut evita conflictele oște s-au produs. [N : 155]

d. ... ca într-un ceasornic care măsoară în secunde anii
oști au trecut. [N : 155]

e. Acești / Acel / Cel oștina studenți oști au venit vor fi
recompensați.

f. Unii / alți / mulți studenți oști au venit.

As already noticed by Carlson, ARs are often semantically equivalent with ordinary RRCs ; thus in many of the examples in

(55), oști can be replaced by care without changing the meaning.

e.g. Si numără în gînd pe toți

<u>pe oști</u>
<u>pe care</u>

și vede.

In contrast, oști / care were not freely exchangeable in the comparative relative clauses discussed above.

(55) Am cumpărat tot șapte discuri:

<u>oște</u>
<u>pe care</u>

ai cumpărat și tu.

5.2.3. Both atît (+ Nom) in the comparative structure and the Def. Det + Nom. in ARs proper can be deleted, producing sentences where oști, oștă functions as an independent relative pronoun.

(56) a. Am citit oște cărți ai citit și tu.

b. Oști și văd, de el se plîng. [N : 153]

c. Oște odăi erau în casă nu ajungeau pentru mulțumirea
musafirilor.

d. Trimise în Tara Românească pe G.A.Mano, om deștept și
oult, să-i raporteze oște se petreceau acolo.

5.2.3.1. (Atit) oit structures occasionally function as appositions :

(57) a. Din cele 150 de sate, cîte erau, n-au mai rămas decît 96.

[N : 156]

b. ca să ştii că n-ajunge să reuşeşti să treci din trei sate, cîţi am auzit că sînt înscrise. [MP : 11]

6. In conclusion, some of the clauses introduced by the relative pronoun oit can profitably be analysed on the model of comparative subordinate clauses, while the rest belong in the class of relative subordination. [the latter are often paraphrasable by RCs introduced by care]. In the light of this statement it is easy to account for the translational equivalence between oit RCs and English comparative clauses, ARs, or ordinary RCs. The examples are taken from published translations of well known Romanian literary texts :

6.1. R. Cît în 'relative - comparative' - E. a)-comparative clauses structures.

(58) a. - Dar prea multe necazuri s-au îngrămădit pe capul meu.

- Cîte a dat Dumnezeu, Harap Alb, zise sfînta Duminică.

[C : 69]

a'. but too many worries at one time are weighing my head down.

a". As many as God willed, Harap Alb, Holy Sunday said.

[C : 261]

b. şi care dincotro îl ruga ; unul să-i dea bănărit oîta cere- el, altul să-i deie fata şi jumătate din împărăţie.

[C : 72]

b'. Scores of kings and emperors met him and made him great offers : one would give him as much money as he wanted ; another would give him his daughter and half his realm. [C : 264]

E.b) amount relatives proper.

(59) a. Atunci săi repede înlăuntru, de-ţi ia sălăpi într-ales şi cîte-i vrea de multe, căci pe urs l-am pus eu în cale.

[C : 64]

a'. Then jump right in, choose all (which) you want of the lettuces, for I've taken care of the Bear. [CT : 252]

- b. Si Harap Alb numai o țiră cît a stat de s-a uitat a făcut turturi la gură.
- b'. In the time it took to stop and look at this, Harap Alb felt icicles forming round his mouth. [C : 271]
- c. Căci multe au văzut ochii mei, de atîta amar de veacuri cîte port pe umerele astea. [C : 40]
- c'. for many things have I seen in the ages and ages my shoulders are bending under. [C : 241]
- 5.2. R. cît in ARs proper E : a) wh - RRCs
- (60) a. ... să-mi dai socoteală una cîte una de toate prin cîte ai trecut ca om înșurat. [Car: 222]
- a'... to give me an account of all the things, one by one, which you have passed through as a married man. [Car: 223]
- b) ARs
- (61) a. S-a sculat binîșor, a strîns cîtă drojdie se mai găsea pe fundul lăzii. [Car: 254]
- a'. He rose quietly, collected the dregs that remained at the bottom of the money chest. [Car: 255]
- b. Nu-i era de ajuns cum le încornora toate cîte le auzise și le vedea pe ascunselea. [Car: 238]
- b'. It was not enough for her to exaggerate all she heard and saw through the peep-hole. [Car: 239]

Notes

- 1) Horn (1971) seems to be the first linguist to describe cardinals as indefinite, existential quantifiers, as the basis of the There - Insertion test.
- 2) A detailed transformational analysis of measure phrases [-G. Cant (grup cantitativ)] is found in Pană (1974 : 160-162), wherefrom we quote the following rules and examples :
 G.Cant → (Prop) {

Numeral	(de)	Substantiv
(M-a împus (ou) 20 de lei)		
Adverb	(Mă costă mult / puțin,)	
Grup nominal	(Mă costă o avere)	

B I B L I O G R A P H Y

1. Abbot, Barbara (1976) - "In Defense of Certain Scopes", in CLS 12, p. 1-11.
2. Akmajian, A. (1970) - "On Deriving Cleft Sentences from Pseudo-cleft Sentences", in LI, vol. I, p. 149-168.
3. Akmajian, A. and Kitagawa Chisato (1976) - "Deep Structure Binding of Pronouns and Anaphoric Bleeding in Ig.", vol. 52, p. 61-78.
4. Altham, J.B.J. (1971) - "The Logic of Plurality", London
5. Anderson, S.R. and Kiparski, P. eds. (1973) - A Festschrift for Morris Halle,
6. Andrei, C.J. (1975) - "Reluarea propoziției subiective", in AUI, p. 123-129.
7. Aronoff, M. (1975) - Word Formation in Generative Grammar, LI Monograph 1, MIT Press, Cambridge Massachusetts
8. - " - (1978) - "Lexical Representation", in Farkas Donca et al. eds.
9. Bach, E. (1968) - "Nouns and Noun Phrases", in Bach E. and Harms R., eds.
10. - " - (1971) - "Questions", in LI vol. 2 nr. 2, p. 153-166.
11. Bach, E. and Harms, R. eds. (1978) - Universals in Linguistic Theory, New York.
12. Bach, E. and Horn, G. (1976) - "Remarks on Conditions on Transformations", in LI, vol. 7, p. 265-361.
13. Bădescu, Alice (1962) - Gramatica limbii engleze, București.
14. Baker, C.L. (1966) - "Definiteness and Indefiniteness in English" University of Illinois (mimeo).
15. - " - (1970) - "Notes on the Description of English Questions: The Role of an Abstract Question Morpheme", in FL, vol. 6, p. 197-219.
16. Bantaș, A. (1977) - Elements of Descriptive English Syntax, TUB
17. Bar-Hillel, Y. (1964) - Language and Information: Selected Papers on Their Theory and Application, The Jerusalem Academic Press, Jerusalem.
18. - " - (1964 a) - "A Quasi - Arithmetical Notation for Syntactic Description", in Bar-Hillel (1964), p. 61-74.
19. - " - (1964 b) - "Some Linguistic Obstacles to Machine Translation", in Bar-Hillel (1964), p. 75-86.
20. Bar-Hillel, Y., Gaifman, C. and Shamir, L. - "On Categorical and Phrase Structure Grammar", in Bar-Hillel (1964) p. 99-115.
21. Bartsch Renate (1973) - "The Semantics and Syntax of Number and Numbers", in Kimball, J. ed., p. 51-93.
22. - " - (1975) - "Subcategorization of Adnominal and Adverbial Modifiers", in Keenan, ed., p. 175-187.
23. - " - (1976) - "The Role of Categorical Syntax in Grammatical Theory", in Kasher, ed. p. 503-539.

24. Bennett, M. (1972) - "Accommodating the Plural in Montague's Fragment of English", in Rodman ed.
25. - " - (1977) - "A Response to Karttunen on Questions", in LPh, vol. I, p. 287-300.
26. Benveniste, E. (1966) - Problèmes de linguistique générale, vol. I, Paris, Gallimard.
27. Berable, E. D. (1977) - "Logical Representation and Linguistic Theory", in LI, vol. 3, p. 351-379.
28. Bever, G. T. (1975) - "Functional Explanations Require Independently Motivated Functional Theories", in Grossman, R. E. et al. eds. p. 580-607.
29. Bever, G. T. and Langendoen, D. T. (1971) - "A Dynamic Model of the Evolution of Language", in LI, vol. II, p. 433-463.
30. Bidu Angela (1966) - "Schită de sistem al pronumelor demonstrative", in SCL, vol. XVIII, p. 87-93.
31. Bierwisch, M. and Heidolph, K. eds. (1970) - Progress in Linguistics, The Hague, Mouton.
32. Bischof, F. W. (1976) - "Psychology and Language Memory", in Charniak, E. and Wilks, Y. eds. p. 185-203.
33. Bloomfield, L. (1933) - Language, New York.
34. Bogdan, R. J. and Niiniluoto (1973) - Logic, Language and Probability, D. Reidel Publishing Company, Dordrecht-Holland.
35. Bolinger, D. L. (1967) - "Adjectives in English: Attribution and Predication", in Lingua, 18, p. 1-34.
36. - " - (1972) - That's That, Mouton, The Hague.
37. Bresnan, Joan (1970) - "On Complementizers: Towards a Syntactic Theory of Complement Types", in FL, vol. 6, p. 297-322.
38. - " - (1973) - "Syntax of the Comparative Construction in English", in LI, vol. 4, p. 275-344.
39. - " - (1974) - "The Position of Certain Clause Particles in Phrase Structure", in LI, vol. 5, p. 614-619.
40. - " - (1976) - "On the Form and Functioning of Transformations", in LI, vol. 7, p. 3-40.
41. Bresnan, Joan and Grimshaw, J. (1978) - "The Syntax of Free Relatives in English", in LI, vol. 9, nr. 3.
42. Bruck, A. (1978) - "Strict Subcategorization in Chomsky, in de Saussure, and in Practice", in CIS 14, p. 44-55.
43. Cantrall, W. R. (1971) - "Comparison and Presupposition", in LI, vol. 2, p. 573-575.
44. Carabulea, Elena (1959) - "Atributive circumstanțiale", in SCL, X, p. 343-354.
45. - " - (1963) - "Atributive determinative și explicative", in Studii de gramatică, vol. III, p. 139-151.
46. Carnap, R. (1947) - Meaning and Necessity, a Study in Semantics and Modal Logic, University of Chicago Press.
47. Carlson, G. N. (1977) - "Amount Relatives", in LG, vol. 53, p. 520-43.
48. Cattel, R. (1976) - "Constraints on Movement Rules", in LG, vol. 52, nr. 1, p. 18-51.

98. Dowty, R.D. (1976) - "Montague Grammar and the Lexical Decomposition of Causative Verbs," in Partee, B. ed., p. 241-247.
99. - " - (1978) - "Applying Montague's Views on Linguistic Metatheory to the Structure of the Lexicon", in Farkas Donka et al. eds., p. 97-138.
100. Ducrot, O. (1972) - Dire et ne pas dire, Hermann, Collection Savoir, Paris.
101. - " - (1973) - La preuve et le dire, Mame, Repères, Paris.
102. Dumitrescu, Monica (1973) - "O particularitate sintactică a exprimării orale: anacolutul", in Fonetică și Dialectologie, p. 141-153.
103. Ebert, Karen (1973) - "Functions of Relative Clauses in Reference Acts", in Linguistische Berichte 23, p. 1-10.
104. Epée, R. (1976) - "A Counterexample to the Q Replacement and Comp Substitution Universal", in LI.
105. Farkas, Donka (1978) - "Direct and Indirect Object Reduplication," in CLS 14, p.88-98.
106. Farkas, Donka, Jacobson, W., Todrys, K. (1978) eds. - Papers from the Parasession on the Lexicon, Chicago, University Press.
107. Fillmore, Ch. and Langendoen, T. eds. (1971) - Studies in Linguistics Semantics, Holt, Rinehart, Winston.
108. Firbas, J. (1964) - "On Defining Theme in Functional Sentence Analysis", in Travaux Linguistiques de Prague 1, p. 267-280.
109. - " - (1966) - "Non-Thematic Subjects in Contemporary English", in Travaux Linguistiques de Prague 2, p. 239-256.
110. Flonta, M. (1975) - Adevăruri necesare ?, Editura Științifică și Enciclopedică, București.
111. - " - (1978) - Notes from Lectures in General Epistemology (ms).
112. Fox, S., Beach, A.W., Philosoph, S. (1977) - CLS Book of Squibs, Chicago University Press.
113. Van Fraassen, B.C. (1969) - "Presupposition, Supervaluation and Free Logic", in K. Lambert, ed., The Logical Way of Doing Things, Yale University Press, New Haven.
114. Frants, J. (1973) - "On Question Word Movement", in LI vol.4, p.531-534.
115. Frege, G. (1892) - "Über Sinn und Bedeutung" in Zeitschrift für Philosophie und Philosophische Kritik, p.25-50 ; Translated in P. Geach and M. Black, Translations from the Philosophical Writings of Gottlob Frege, p.28-50, Oxford, 1952.
116. - " - (1918) - "The Thought : A Logical Inquiry ", reprinted in Mind, vol.65, 1956, p. 289-311.
117. - " - (1892a) - "Concept și obiect", translated by Vieru, S., in Gottlob Frege, Scrieri filosofice, p.289-306, București, 1977.
118. Fodor, J.D., Fodor, J.A. and Garrett, M.F. (1975) - "The Psychological Unreality of Semantic Representations", in LI 1975, vol. VI, p. 515-533.

119. Gabbay, D.M. (1973) - "Representation of the Montague Semantics as a Form of the Suppes Semantics", in Hintikka et al. eds., p.395-409.
120. Gabbay, D.M. and Moravcsik, J. (1974) - "Branching Quantifiers in English and Montague Grammar", in ThL, nr.1,2, p. 139-158.
121. Gabrea, Maria (1972) - "Observații asupra pronumelor care, cine, ce", in Limba română, nr. 2, p.127-133.
122. Gallin, D. (1975) - Intensional and Higher - Order Modal Logic, North Holland Publishing Company.
123. Garvin, P. (1970) ed., - Method and Theory in Linguistics, Mouton, The Hague.
124. Gazdar, G. (1975) - Implicature and Presupposition, University of Reading Dissertation.
125. Gazdar, G. and Klein, E. (1977) - "Context - Sensitive Transderivational Constraints and Conventional Implicature", in CLS 13, p. 137-147.
126. Geach, P. (1976) - "Back Reference", in Kasher, A. ed., p.25-41.
127. Givón, T. (1973) - "Opacity and Reference in Language : An Inquiry into the Role of Modalities in Kimball, ed., p. 95-122.
128. Gramatica Academiei, vol. I, II, ediția a 2-a, București, 1963.
129. Graur, A. (1963) - "Pentru o sintaxă a propozițiilor principale" in Studii de gramatică, vol. I, p.120-139.
130. Greenberg, J.H. (1963) - "Some Universals of Grammar with Particular Reference to the Order of Meaningfull Elements", in Greenberg, J.H. ed., Universals of Language, the M.I.T. Press.
131. Grice, P.H. (1975) - "Logic and Conversation", in Cole, P. and Morgan, J., eds., p.43-59.
132. Grimes, J.E. (1975) - The Thread of Discourse, Mouton, The Hague.
133. Grosu, A. (1972) - The Strategic Content of Island Constraints, Unpublished Dissertation, Ohio, Columbia.
134. - " - (1977) - "Constraints on the Distribution of NP Clauses", in Ig.
135. Grossman, R.E., San, J. and Vancu, T., eds., (1975) - Papers from the Parasession on Functionalism, The Chicago University Press.
136. Guțu Romalo, Valeria (1961) - "Propoziții relative", in Studii de gramatică, vol. II, p. 161-173.
137. - " - (1960) - "Repetiția, procedeu sintactic de exprimare a aspectului în limba română", in SCL nr. 3, p.485-493.
138. Hajicova, Eva (1977) - Functionalism and Topic/Focus in Generative Description (mimeo).
139. Halliday, M.A.K. (1967-68) - "Notes on Transitivity and Theme in English", JL 3, 37-81, 199-244, 4, 179-215.
140. Halvorsen, P.K. (1972) - "Syntax and Semantics of Cleft Sentences", in CLS 12, p.271-285.
141. Hamblin, C. (1976) - "Questions in Montague English", in Partee, B. ed., p.247-271)

142. Hankamer, J. (1973) - "Unacceptable Ambiguity", in LI, vol. 4, p. 17-68.
143. - " - (1973 a) - "Why There Are Two than's in English?", in CLS 9, p. 179-189.
144. - " - (1974) - "On the Non-Cyclic Nature of Wh-Clefting", in CLS 10, p. 211-234.
145. Hausser, R. (1973) - "Presuppositions and Quantifiers", in CLS 9, p. 192-204.
146. - " - (1974 a) - Quantification in an Extended Montague Grammar, Unpublished Dissertation, University of Texas, Austin.
147. - " - (1974 b) - "Syntax and Semantics of Plural", in CLS 10, p. 234-247.
148. Herzberger, H. (1970) - "Truth and Modality in Semantically Closed Languages", in Martin, R. L. ed., The Paradox of the Liar, Yale University Press.
149. Heidrich, C. H. (1975) - "Should Generative Semantics Be Related to Intentional Logic?", in Keenan, J., ed., p. 188-204.
150. Harman, G. (1972) - "Against Universal Semantic Representation", presented at the Texas Symposium on Speech Acts.
151. - " - (1974) - "Meaning and Semantics", in Munitz, M. and Unger, P., eds., p. 1-15.
152. Hintikka, K. J. (1962) - Knowledge and Belief, Ithaca, Cornell.
153. - " - (1969) - Models for Modalities : Selected Essays, Dordrecht, Holland.
154. - " - (1973) - "Grammar and Logic", in Hintikka et al. eds.,
155. - " - (1974 a) - "On the Proper Treatment of Quantifiers in Montague Semantics", in Stenlund, ed., Logical Theory and Semantic Analysis, p. 45-60.
156. - " - (1974 b) - "Questions about Questions", in Munitz, M. and Unger, P., eds., p. 103-159.
157. - " - (1975) - The Intentions of Intentionality and Other New Models, D. Reidel Publishing Company, Dordrecht, Holland.
158. - " - (1975 a) - "Carnap's Heritage in Logical Semantics", Ch. V in Hintikka (1975), p. 76-102.
159. - " - (1975 b) - "Quine on Quantifying In : A Dialogue", Ch. VI in Hintikka (1975), p. 103-142.
160. Hintikka, K. J., Moravcsik, J. M. E. and Suppes, P., eds., (1973) - Approaches to Natural Language, Dordrecht, Holland.
161. Horn, L. R. (1972) - On the Semantic Properties of Logical Operators in English, Unpublished Dissertation, UCLA.
162. Hornby, A. et al. (1963) - The Advanced Learner's Dictionary of Current English, London.
163. Huddleston, R. D. (1971) - The Sentence in Written English, Cambridge University Press.
164. - " - (1974) - "Notes on a Comparative Tautology", in LI, vol. V, p. 252-254.
165. Hudson, R. A. (1972) - "Why It Is That That That Follows The Subject Is Impossible", in LI, vol. IV, p. 11-14.

166. Hughes, G.E. and Crosswell, M.J. (1968) - An Introduction to Modal Logic, London.
167. Hull, R.D. (1975) - "A Semantics for Superficial and Embedded Questions in Natural Language", in Keenan, J., ed., p.35-45.
168. Iliescu, Maria (1959) - "Concurența dintre pronumele relative care, ce", in Studii de gramatică, vol. I, p.25-35.
169. Iordan, I. () - Stilistica limbii române, București.
170. Itkonen, E. (1975) - "Transformational Grammar and the Philosophy of Science", in Koerner, E. ed., p.381-447.
171. Jacobs, R. and Rosenbaum, P. (1970) eds., - English Transformational Grammar, Blaisdell, Boston.
172. Jardine, N. (1975) - "Model Theoretic Semantics and Natural Language", in Keenan, J. ed., p. 219-240.
173. Jespersen, O. (1909-49) - A Modern English Grammar on Historical Principles, vol. I-VII, London and Copenhagen.
174. - " - (1971) - Analytical Syntax, Holt, Rinehart, Winston.
175. Kalish, D. and Montague, R. (1964) - Logic : Techniques of Formal Reasoning, New York.
176. Kalogjera, D. (1976) - "On "Broader" or "Factual" Contrastive Analysis", in The 2-nd International Conference of English Contrastive Projects, TUB, p.101-107.
177. Kamp, J.A.W. (1975) - "Two Theories about Adjectives", in Keenan, J. ed., p.123-155.
178. Kaplan, D.B. (1964) - Foundation of Intensional Logic, Unpublished Dissertation UCLA.
179. - " - (1968) - "Quantifying In", in Davidson, D., Hintikka, K.J. eds., Words and Objections, p.
180. Karttunen, L. (1969) - "Problems of Reference in Syntax", Unpublished Dissertation, Austin.
181. - " - (1973) - "Presuppositions of Compound Sentences", in LI, vol. IV, p.169-194.
182. - " - (1974) - "Presuppositions and Linguistic Context", in ThL 1, p.182-195.
183. - " - (1977) - "The Syntax and Semantics of Questions", in LPh, nr. 3, p.3-34.
184. Karttunen, L. and Peters, S. (1972) - "What Indirect Questions Conventionally Implicate", in CIS 12, p.351-369.
185. - " - (1975) - "Conventional Implicature in Montague Grammar", in BLS 1, p.266-278.
186. - " - (1977) - "Conventional Implicature", (mimeo).
187. Kasher, A. (1974) - "Mood Implicatures : A Logical Way of Doing Generative Pragmatics", in ThL 1, p. 6-39.
188. - " - (1975) - "The Integration of Montague Grammar in Natural Logic and Linguistics", in ThL nr.1-2, p.133-147.
189. - " - (1976) - "Conversational Maxims and Rationality", in Kasher, A. ed., pg. 197-217.
190. - " - ed. (1976) - Language in Focus, D.Reidel Publishing Company, Dordrecht, Holland.

191. Katz, J. and Fodor, J.R. (1963) - "The Structure of a Semantic Theory", in *Lg*, vol.39, p.170-210.
192. Katz, J. and Postal, P. (1964) - An Integrated Theory of Linguistic Description, The MIT Press, Cambridge, Mass.
193. Keenan, E.L. (1970) - A Logical Base for a Transformational Grammar of English, Unpublished Dissertation, University of Pennsylvania.
194. - " - (1972) - "On Semantically Based Grammar", in *LI* vol.IV, p.413-460.
195. - " - (1972 a) - "Relative Clause Formation in Malagasy", in Paranteau et al. ed., pag. 169-189.
196. - " - (1974) - "Presupposition, Assertion and Consequence in Natural Language", *The Monist*.
197. - " - (1975) - "Logical Expressive Power and Syntactic Variation in Natural Language", in Keenan ed., p.406-421.
198. - " - ed. (1975) - Formal Semantics of Natural Language, Cambridge University Press.
199. Keenan, E.L. and Comrie, R. (1972) - "Noun Phrase Accessibility in Universal Grammar", (mimeo).
200. - " - (1977) - "Noun Phrase Accessibility and Universal Grammar", in *LI*, vol. VIII, p.63-101.
201. Kiefer, F. ed. (1969) - Studies in Syntax and Semantics, D.Reidel Publishing Company, Dordrecht, Holland.
202. Kiparsky, P. and Kiparsky, C. (1971) - "Fact", in Steinberg, D. and Jakobovits, eds., p.345-370.
203. Koerner, E.F.K., ed. (1975) - The Transformational Generative Paradigm and Modern Linguistic Theory, Amsterdam.
204. Kazasis, K. and Pantherondakis, J. (1976) - "Reduplication of Indefinite DO in Albanian and Modern Greek", in *Lg*, vol. 52, nr.2, p.398-403.
205. Kripke, S. (1963) - "Semantical Consideration of Modal Logic", in *Acta Philosophica Fennica* 16, p.83-94.
206. - " - (1972) - "Naming and Necessity" in Davidson and Harman, eds.
207. Kuno, S. (1973) - "Constraints on Internal Clauses and Sentential Subjects", in *LI*, vol.IV, p.333-378.
208. - " - (1975) - "Three Perspectives in the Functional Approach to Syntax", in Grossman et al., eds., p.276-337.
209. Kuno, S. and Robinson, J. (1972) - "Multiple wh Questions", in *LI*, vol.III, p.463-488.
210. Kuroda, S.Y. (1969) - "English Relativization and Certain Related Problems", in Reibel, D. and Schane, S.A., eds., p. 264-287.
211. Kutschera, F. (1976) - "Epistemic Interpretation of Conditionals", in Kasher, ed., p.487-501.
212. Kimball, J., ed. (1972) - Syntax and Semantics, vol. I, Seminar Press, New York.
213. - " - ed. (1973) - Syntax and Semantics, vol. II, Seminar Press, New York.

214. Lakoff, Robin (1971) - " 'Ii's, 'And's and 'But's about Conjunction" in Fillmore, Ch. and Langendoen, D.T., eds., r.
215. - " - (1974) - "Remarks on This and That", in BLS I.
216. Lakoff, G. (1969) - "On Derivational Constraints", in CLS 5, p.117-140.
217. - " - (1970) - "Global Rules", in Lg. vol. 46, p.627-39.
218. - " - (1971) - "Presupposition and Relative Well-Formedness", in Steinberg, D. and Jakobovits, L. eds., p. 160-186.
219. - " - (1971 a) - "On Generative Semantics", in Steinberg, D. and Jakobovits, L. eds., p.232-296.
220. - " - (1972) - "Linguistics and Natural Logic", in Davidson and Harman, eds., p.545-666.
221. Lakoff, G. and Peters, S. (1969). - "Phrasal Conjunction and Symmetric Predicates", in Reibel, D. and Schane, S. eds., p.113-142.
222. Langacker, R. (1974) - "The Question of Q", in FL, 11, p.1-37.
223. - " - (1974 a) - "Movement Rules in Functional Perspective", in Lg, vol.50, p.630-665.
224. Langendoen, D.T. and Savin, H.B. (1971) - "The Projection Problem for Presuppositions", in Fillmore, Ch. and Langendoen, D.T., eds., p.55-60.
225. Lee, K. (1974) - "Negation in Montague Grammar", in CLS 10, p.378-390.
226. Lees, R.B. (1961) - "Grammatical Analysis of the English Comparative Construction", Word 17, p.171-185.
227. Levițchi, L. și Preda, I.A. (1967) - Gramatica limbii engleze, Editura Stiintifică București.
228. Lewis, D. (1972) - "General Semantics", in Davidson and Harman, eds., p.168-216.
229. -- " - (1974) - "Tensions", in Munitz, M. and Unger, P. eds., p. 49-63.
230. - " - (1975) - "Adverbs of Quantification", in Keenan, J. ed., p.3-16.
231. Lewis, H.A. (1973) - "Combinators and Deep Structure", in Bogdan, R.J. and Niiniluoto, I., eds., p.213-222.
232. Lieb, H.H. (1974) - "Grammars as Theories : The Case for Axiomatic Grammars" (part.I), in ThL, nr.1,2, p.39-116.
233. Loetscher, A. (1972) - "Some Problems Concerning Standard German Relative Clauses", in Paranteau et al., eds., p.47-57.
234. - " - (1973) - "On the Role of Nonrestrictive Relative Clauses in Discourse", in CLS 9, p.356-368.
235. Lyons, J. (1975) - "Deixis as the Source of Reference", in Keenan, ed., p.61-83.
236. Maling, Joan, M. (1976) - "Notes on Quantifier Postposing", in LJ vol.VII, p.701-710.
237. Malone, J.H. (1967) - "A Transformational Re-examination of English Questions", in Lg 43, p. 686-702.

238. Manoliu-Manea, Maria (1968) - Sistematica substitutelor din
româna contemporană standard, Editura Academiei
RSR, București.
239. - " - (1971) - Gramatica comparată a limbilor
romanice, Ed. Didactica și Pedagogică, București.
240. - " - (1972) - "Sobre la transformacion relativa
en espanol y rumeno", in Cahiers de linguistique
théorique et appliquée, 9, p.15-56.
241. - " - (1977) - "Iti cumpăr ce păpușă vrei, Le
défini dans une grammaire transformationnelle du
roumain", (mimeo).
242. - " - (1977 a) - Tipologie și istorie, TUB.
243. Măineș, Mihaela (1978) - Aspecte formale ale procesului de
cunoaștere științifică - Inferența în lingvistică,
București, (mimeo).
244. Marcus, S. (1967) - Algebraic Linguistics ; Analytical Models,
New York and London.
245. Martin, M.R. (1958) - Truth and Denotation,
246. - " - (1975) - "Why I am not a Montague Grammarian", in
ThL, p. 147-157.
247. Mathiot, M. (1976) - "Referential Gender in American English :
Who is Sexist", Buffalo, (mimeo).
248. Mendelson, E. (1964) - Introduction to Mathematical Logic,
Princeton, Van Nostrand.
249. Mischel, E. ed. (1969) - Human Action, Conceptual and Empirical
Issues, Academic Press, New York and London.
250. Mc Cawley, J. (1970) - "Where do Noun Phrases Come From?", in
Jacobs and Rosenbaum, eds, p.166-182.
251. - " - (1977) - "Lexicographic Notes on English Quantifiers",
in CLS 15, p.372-384.
252. - " - (1978) - Everything That Linguists Have Always
Wanted to Know about Logic (but Were Ashamed to
Ask, (mimeo).
253. Meyer, R.K. and Routley, R. (1977) - "Extensional Reduction", in
The Monist, vol.60, p.355-370.
254. Montague, R. (1968) - "Pragmatics" reprinted in Thomason ed. p.95-119.
255. - " - (1969) - "On the Nature of Certain Philosophical
Entities", reprinted in Thomason, ed. p.148-187.
255. - " - (1970a) - "English as a Formal Language", reprinted
in Thomason, ed. p. 188-221
256. - " - (1970) - "Universal Grammar", reprinted in Thomason,
ed., p. 222-246.
257. - " - (1973) - "The Proper Treatment of Quantification in
Ordinary English", reprinted in Thomason, ed.
p. 247-270.
258. Morgan, J. (1972) - "Verb-Agreement as a Rule of English", in
CLS 12, p.278-287.
259. Morin, Y.Ch. (1976) - "De ces - The Lexicalization of a Syntactic
Expression", in LI, vol.VII, p.706-707.
260. Kunitz, M. and Unger, P. eds. (1974) - Semantics and Philosophy,
New York.

261. Neijt, Anneke (1978) - "Constraints on Gapping", in CLS 14, p.307-315.
262. Newmeyer, F. (1978) - "The Self-Defeating Autonomy Thesis", in CLS 14, p.316-326.
263. Ocheșanu, Rodica (1963) - "Observații asupra propozițiilor interogative indirecte", in Studii de gramatică, vol.III, p.151-159.
264. Pană-Dindelegan, Gabriela (1974) - Sintaxa transformatională a grupului verbal în limba română, Editura Academiei RSR, București.
265. Paranteau, P.M., Levi, J.N., and Phares, G.C. eds. (1972) - The Chicago Which Hunt: The Relative Clause Festival, Chicago University Press.
266. Partee, Barbara (1970) - "Opacity, Coreference, and Pronouns", in Synthese 21, p.359-385.
267. - " - (1971) - "On the Requirement that Transformations Preserve Meaning", in Fillmore, Ch. and Langendoen, D.T. eds.
268. - " - (1974) - "Opacity and Scope", in Müntz, M. and Unger, P. eds. p.81-103.
269. - " - (1975) - "Montague Grammar and Transformational Grammar", in LI, vol.VI, p.203-301.
270. - " - (1977) - "Possible Worlds Semantics and Linguistic Theory", in The Monist, vol.60, p.303-327.
271. - " - ed. (1976) - Montague Grammar, Academic Press, New York and London.
272. Perlmutter, D. and Ross, J.R. (1970) - "Relative Clauses with Split Antecedents", in LI, vol.I, p.350-353.
273. Peters, R.S. (1969) - "Motivation, Emotion, and the Conceptual Schemes of Common Sense", in Theodore, Mischel, ed.
274. Pîrva, I. (1974) - Semantica și logica științei, Editura Științifică, București.
275. Pesetsky, D. (1978) - "Category Switching and So-Called Pronouns", in CLS 14, p.362-377.
276. Postal, P. (1969) - Cross Over Phenomena, Holt, Rinehart and Winston, Inc.
277. - " - (1969 a) - "On So-Called 'Pronouns' in English", in Reibel, D. and Schane, S. eds.
278. - " - (1972) - "On Some Rules That Are Not Successive Cyclic", in LI, vol.III, p.211-220.
279. - " - (1972 a) - "Two Remarks on Dragging", in LI, vol.III, p.130-136.
280. - " - (1974) - On Raising, The MIT Press, Cambridge Mass.
281. - " - (1974 a) - "On Certain Ambiguities", in LI, vol.V, p. 364-424.
282. Potts, T.C. (1973) - "Fregean Categorical Grammar", in Bogdan, R.J. and Niiniluoto, I. eds., p.245-281.
283. - " - (1975) - "Model Theory and Linguistics", in Keenan ed. p.241-252.

284. Poutsma, H. (1926-29) - A Grammar of Late Modern English, Groningen.
285. Putnam, H. (1960) - "Do True Assertions Correspond to Reality?", in Putnam (1977), p.70-84).
286. - " - (1967) - "The Innateness Hypothesis and Explanatory Models in Linguistics", in Putnam (1977)p.107-17.
287. - " - (1970) - "Is Semantics Possible?", in Putnam (1977), p.152-161.
288. - " - (1975) - "The Meaning of Meaning", in Putnam (1977), p. 215-272.
289. - " - (1977) - Mind, Language, and Reality, Cambridge University Press.
290. - " - (1978) - "Reference and Understanding", in Meaning and the Moral Sciences, Routledge and Kegan Paul, London.
291. Quine, W.V.O. (1953) - From a Logical Point of View, Cambridge, Mass.
292. - " - (1960) - Word and Object, The MIT Press, Cambridge, Mass.
293. Quirk, R., Greenbaum, S., Leech, G. and Svartvik, J. (1972) - A Grammar of Contemporary English, Seminar Press.
294. Reibel, D. and Schane, S. eds. (1969) - Modern Studies in English, New York.
295. Reis, Marga (1974) - "Further And's and But's about Conjunction", in CLS 10, p.528-539.
296. Rescher, N. (1968) - Topics in Philosophical Logic, D.Reidel Publishing Company, Dordrecht, Holland.
297. - " - (1975) - A Theory of Possibility, Basil Blackwell, Oxford.
298. Rodman, R. ed. (1972) - Papers in Montague Grammar, UCLA (mimeo).
299. - " - (1976) - "Scope Phenomena, Movement Transformations and Relative Clauses", in Partee, B. ed. p.165-177.
300. Rosenbaum, P. (1967) - The Grammar of English Predicate Complement Constructions, The MIT Press.
301. Ross, J.R. (1967) - Constraints on Variables in Syntax, Unpublished Dissertation, MIT.
302. - " - (1969) - "On the Cyclic Nature of English Pronominalization", in Reibel and Schane eds., p.187-200.
303. - " - (1971) - "Gapping and the Order of Constituents", in Bierwisch, M. and Heidolph, K. eds.
304. - " - (1972) - "Variable Strength", (mimeo).
305. - " - (1974) - "There, There (There, (There, (There...)))", in CLS 10, p.563-588.
306. - " - (1977) - "Goodby to whom, Hello who to", in Fox, S. et al. eds., p.88-92.
307. Russell, B. (1940) - An Inquiry into Meaning and Truth, London.
308. - " - (1903) - "On Denoting" in Mind, vol.14.
309. Sag, I. (1972) - "A Logical Theory of Verb Phrase Deletion", in CLS 12, p.533-547.
310. Schachter, P. (1973) - "Focus and Relativization", in Lg., vol.49, 1973, p. 19-46.

311. Scheuerrwégs, G. (1959) - Present-Day English Syntax, London.
312. Sheldon, A. (1976) - "Speakers' Intuitions about the Complexity of Relative Clauses in English and Japanese", in CLS 12, p.558-568.
313. Schnelle, H. (1976) - "Basic Aspects of the Theory of Grammatical Form", in Kasher, A. ed., p.377-405.
314. Shoenfield, J.R. (1967) - Mathematical Logic, Addison-Wesley, Reading, Mass.
315. Smaby, R. (1974) - "Subordinate Clauses and Asymmetry in English", in Journal of Linguistics, p.235-271.
316. Smith, Carlota (1961) - "A Class of Complex Modifiers in English", in Lg vol.37, p.342-365.
317. - " - (1964) - "Determiners and Relative Clauses in a Generative Grammar of English", in Lg.40, p. 37-52.
318. - " - (1969) - "Ambiguous Sentences with And", in Reibel, D. and Schane, S. eds.
319. Smith, D.M. (1974) - "The Adequacy and Reality of Underlying Representations : Relative Clauses Formation", in CLS 10, p.643-657.
320. Sneed, J.D. (1971) - The Logical Structure of Mathematical Physics, Dordrecht, Holland.
321. Sommers, F. (1963) - "Types and Ontology", in the Philosophical Review, vol.72, reprinted in Strawson, P. ed. p.138-170, Oxford University Press, Philosophical Logic.
322. Stalke, H.F.W. (1976) - "Which That", in Lg, vol.52, p.584-611.
323. Stalnaker, R.C. (1972) - "Pragmatics", in Davidson and Harman, eds. p.380-398.
324. - " - (1974) - "Pragmatic Presuppositions", in Munitz, M. and Unger, P., eds. p.197-225.
325. - " - (1974 a) - "Contexts and Possible Worlds", (mimeo).
326. - " - (1976) - "Indicative Conditionals", in Kasher, A. ed., p.179-190.
327. Stampe, D.W. (1974) - "Attributives and Interrogatives", in Munitz, M. and Unger, P., eds., p.159-197.
328. Stegmüller, W. (1969) - Main Currents in Contemporary German, British and American Philosophy, English translation, 1971, D.Reidel Publishing Company, Dordrecht - Holland, vol. I
329. - " - (1975) - Hauptströmungen in Gegenwarts Philosophie, vol.II, Stuttgart, Kroner, p.35-65 : Universalgrammatik, Richard Montague.
330. Steinberg, D. and Jacobovits, L. (1971) - Semantics : An Interdisciplinary Reading, Cambridge University Press.
331. Stenlund, S. (1974) - Logical Theory and Semantic Analysis, D.Reidel Publishing Company, Dordrecht - Holland.
332. Stockwell, R., Schachter, P. and Partee, B. (1973) - The Major Syntactic Structures of English, Holt, Rinehart and Winston, New York.
333. Stump, T.G. (1978) - "Interpretive Gapping in Montague Grammar", in CLS 14, p.472-482.

334. Suppes, P. (1957) - Introduction to Logic, Princeton.
335. - " - (1973) - "Semantics of Context-Free Fragments of Natural Languages", in Hintikka, J.K. et al., eds. p.370-394.
336. Suzsko, R. (1958, 1960) - "Syntactic Structure and Semantical Reference", in Studia Logica, p.123-156, 63-93.
337. Sweet, H. (1891-98) - A New English Grammar, Oxford.
338. Tannenhouse, M., and Carroll, J. (1975) - "The Clausal Processing Hierarchy and Nouniness", in Grossman, R.E. et al., eds., p.493-512.
339. Tarski, A. (1935) - "Der Wahrheitsbegriff in den formalisierten Sprachen", in Studia Philosophica 1, p.261-405., translated in Tarski, A. (1956) - Logic, Semantics Metamathematics, p.152-197.
340. - " - (1935) - "On the Concept of Logical Consequence", in Tarski (1956) above.
341. Tesnière, L. (1959) - Éléments de syntaxe structurale, Paris, Klincksieck.
342. Theban, L. (1971) - "On the Theoretical Basis of Contrastive Syntax", in BRECAP I, p.81-91.
343. Thomason, R. (1973) - "Semantics, Pragmatics, Conversation and Presupposition", (mimeo).
344. - " - (1974) - "Some Complement Constructions in Montague Grammar", in CLS 10, p.712-723.
345. - " - (1976) - "Some Extensions of Montague Grammar", in Partee, B., ed., p.77-119.
346. - " - ed. (1974) - Formal Philosophy, New Haven and Yale University.
347. Thorne, J. (1972) - "On Non-Restrictive Relative Clauses", in LI, vol. III, p.552-556.
348. Tichy, P. (1971) - "An Approach to Intensional Analysis", in Nous, p.273-297.
349. Tuțescu, Mariana (1973) - Le groupe nominal et la nominalisation en français moderne, Klincksieck.
350. Vasiliu, E. și Golopenția-Eretescu, Sanda (1969) - Sintaxa transformatională a limbii române, București.
351. Vasiliu, E. (1970) - Elemente de teorie semantică a limbilor naturale, Editura Academiei București.
352. - " - (1978) - Preliminarii logice la semantica frazei, Editura Științifică și Enciclopedică, București.
353. Vasiliu, L. (1959) - "Care" și "Ce" în "Carte cu învățătură", în Limba română, 2.
354. Vendler, Z. (1967) - Linguistics in Philosophy, Ithaka, Cornell.
355. Venneman, T. (1973) - "Word-Order and Language Type", (mimeo)
356. - " - (1975) - "Topics, Sentence Accent, Ellipsis : A Proposal for Their Formal Treatment", in Keenan ed., p.313-328.
357. Venneman, T., and Nierfield, G. (1973) - "Explanation in Syntax", in Kimball, J. ed., p.1-51.

358. Vişan, V. (1974) - "Le pronom relatif invariable en roumain et en français", in B.S.R.L.R., p.55-75.
359. Vulpe, Magdalena (1976) - "Notes sur la syntaxe du relatif care", in Revue Roumaine de Linguistique.
360. Wachowitz, P. (1973) - "Against the Universality of a Single Wh-Question Movement", in FL.
361. Wang, J.T. (1973) - "On the Representation of Generative Grammars as First-Order Theories", in Bogdan, R.J. and Niiniluoto eds., p.302-316.
362. Weinreich, U. (1968) - "Explorations in Semantic Theory", in Sebeok, T.A. ed., Current Trends in Linguistics, vol.III, Theoretical Foundations, p.359-447.
363. Wilks, Y.A. (1972) - Grammar, Meaning and the Machine Analysis of Language, London, Routledge and Kegan Paul.
364. - " - (1976) - "Philosophy of Language", in Charniak, E. and Wilks, Y. eds., p.205-233.
365. Wilson, Deirdre (1975) - Presuppositions and Non-Truth Conditional Semantics, Academic Press, New York, London.
366. Wiltkinson, R. (1971) - "Complement Subject Deletion and Subset Relations", in LI, vol.II, p.575-584.
367. Woolford, Ellen (1978) - "Free Relatives and Other Base Generated WH Constructions", in CLS 14, p.482-91.
367. Wunderlich, D. (1976) - "Towards an Integrated Theory of Grammatical and Pragmatical Meaning", in Kasher, A. ed., p.251-281.
368. Zandvoort, R.W. (1957) - A Handbook of English Grammar, London.
369. Zaenan, Annie and Pinkham, Jessie (1976) - "The Discovery of Another Island", in LI, vol.VII, p.629-664.
370. Ziv, Y., and Cole, P. (1974) - "Relative Extraposition and the Scope of Definite Descriptions in Hebrew and English", in CLS 10, p.772-787.
371. Bennett, M. (1976) - "A Variation and Extension of a Montague Grammar of English", in Partee, ed., p.119-264.
372. Milner, J.C. (1975) - De la syntaxe à l'interprétation, Paris.
373. Reinhart, Tanya (1975) - "On Certain Ambiguities and Uncertain Scope", in CLS 11.
374. Ross, J.R. (1973) - "Slifting", in Gröss, M., Halle, M., and Schützenberger, M., eds., - The Formal Analysis of Natural Languages, Mouton.
375. Schibsbye, K. (1965) - A Modern English Grammar, Oxford University Press.
376. Nilsson, Elisa (1969) - Les constructions relatives et les termes relatifs en roumain contemporain, Lund...

ABBREVIATIONS

A. JOURNALS

- AUB - Analele Universității București
AUI - Analele Universității Iași
BLS - Berkeley Linguistic Studies
BRECAP - Bulletin of the Romanian - English Contrastive
Analysis Project
B.S.R.L.R. - Bulletin de la Société Roumaine de Linguistique
Romane
CLS - Papers from the Regional Meeting of the Chicago
Linguistic Society
FL - Foundation of Language
J L - Journal of Linguistic
JVLVB - Journal of Verbal Learning and Verbal Behavior
Lg - Language
LI - Linguistic Inquiry
LPh - Linguistics and Philosophy
SCL - Studii și cercetări lingvistice
ThL - Theoretical Linguistics

B. EXAMPLES

- AN - "A Nun," TV Script
Bth - Barth, John, "The Floating Opera", Penguin Books, 1973
C - Creangă Ion, "Amintiri din copilărie, Povești",
Biblioteca Scolarului, 1960
C,(T) - Creangă Ion, "Memories of My Boyhood, Stories and
Tales", translated by Ana Cartianu and
R.C. Johnston, Minerva Publishing House, 1978
Căl - Călinescu George, "Viața lui Eminescu", Junimea, 1977
Car.(T). - Caragiale, I.L. - "Schite și povestiri - Sketches
and Stories", Dacia, 1979.
Cp - Carpentier Alejo, "Recurso la metodă", Univers, 1977
I - Iorga Nicolae, "Istoria literaturii românești, introducere
sintetică", Minerva 1977

- Ip - Lampedusa di, "The Leopard", Fontana Books, 1963
- M & P - Austen Jane, "Mîndrie și prejudecată", Editura pentru Literatură Universală, 1969
- MP - Preda Marin, "Viața ca o pradă", Cartea Românească, 1976
- N - Nilsson (1969) in Bibliography
- Nc - Noica Constantin, "Sentimentul românesc al Ființei", Editura Eminescu, 1978
- Od - Odobescu Alexandru, "Pseudo-Cyhegetics", Editura Minerva, 1970
- P - Pinter Harold, "The Caretaker", Faber, 1969
- P & P - Austen Jane, "Pride and Prejudice", Oxford University Press
- Pt - Poutsma (1919) in Bibliography
- R - Russell Bertrand, "The History of Western Thought", Clarion Book, 1945
- Sch - Scheuerwegs (1959) in Bibliography
- Sad - Sadoveanu Mihail, "Nicoară Potcoavă", Editura Tineretului, 1959
- S - Schibsbys (1965) in Bibliography (also abbreviated as K.)
- TP - Traverse Plays, Penguin Books, 1965
- TT - Topsy-Turvy World, Moscow, 1974
- V - Vonnegut Kurt, "God Bless You, Mr. Rosewater", Faber, 1973.

VERIFICAT
2017

VERIFICAT
2007



Tiparul s-a executat sub c-da nr. 297/1996 la
Tipodrafia Editurii Universității din București
